

*RESPONSE TO PRODUCTIVITY COMMISSION'S
DRAFT REPORT ON
THE NATIONAL GAS ACCESS REGIME*

BY

*ENERGY MARKETS REFORM FORUM
ELECTRICITY CONSUMERS COALITION OF SOUTH AUSTRALIA
ENERGY CONSUMERS COALITION OF VICTORIA*

*Prepared By:-
Dwyer Partners
Bob Lim & Co Pty Ltd
Headberry Partners Pty Ltd
March 2004*

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PART I: THE PRODUCTIVITY COMMISSION'S DRAFT REPORT

1. Introduction

The Energy Markets Reform Forum, Electricity Consumers Coalition of South Australia and Energy Consumers Coalition of Victoria are major energy and energy infrastructure users whose members are drawn from the following companies:- OneSteel, BHP Billiton, Visy Paper, AMCOR, Orica, Hydro Aluminium Kurri Kurri, Tomago Aluminium, BlueScope Steel, Kimberly-Clark, Mitsubishi Motors, Holden, Toyota, Adelaide Brighton Cement, Ford, Air International, Unidrive and Zinifex (formerly Pasminco). For ease of reference, in this submission the various groups will be collectively referred to as the Major Gas Users Group (MGUG).

The MGUG is very disappointed with the Productivity Commission's (PC) Draft Report. Analysis of the Draft Report suggests a very substantial dilution of the National Gas Access Regime, which will substantially adversely affect the economic interests of upstream and downstream industries.

The PC's Draft Report is flawed in many places and arguments are presented to show that it has, wrongly, assume monopoly away. More worryingly, the Draft Report fails to present an economy-wide assessment of the deadweight losses caused by monopoly pricing of strategic, essential infrastructure and presents little recognition of the public interest. In short, it has failed to meet the terms of reference of the Review.

Also of serious concern to the MGUG is the Draft Report's persistent ignoring of evidence provided by gas users. To effectively ignore evidence provided, especially that which runs counter to the final views detailed in the Draft Report, does not engender a high level of confidence in the draft recommendations.

Part II of this submission assesses the Draft Report's intellectual framework and concludes that there are critical errors, as well as aspects which have been inadequately investigated.

Part III provides comments on the Draft Report's major findings and recommendations. Examples are provided to show that many of the Draft Report's findings and recommendations are flawed because it has effectively ignored evidence provided by major gas users.

Part IV of this submission provides detailed annotations, much of them critical, of the Draft Report.

MGUG representatives will be prepared to debate with the Commissioners at the forthcoming public hearing and, if necessary, elaborate on any aspects of this submission.

PART II: LEARNING TO LOVE MONOPOLY: THE PANGLOSSIAN ECONOMICS UNDERPINNING THE PRODUCTIVITY COMMISSION'S DRAFT REPORT

1. A Brief History of Monopoly

Legal and economic history both records the well-founded distrust - even hatred - of the common people and their Parliamentary representatives towards monopoly. In England this was manifested by Queen Elizabeth I's contrition in her "Golden Speech" of 1601; in France it was manifested in the revolution which swept away the tax farming monopolies of the *ancien regime* and sent the descendants of Louis Capet to the guillotine. In the United States, it was manifested in the antitrust legislation against the Standard Oil trust and its kin.

Against this history of hostility to monopoly, often enjoying the sympathy of economists such as Adam Smith and John Stuart Mill (who both criticized monopolization of land, for example), it is with deep concern and considerable alarm to read the Productivity Commission's Draft Report in its Review of the Gas Access Regime

2. A story

Consumers have major problems with the Draft Report and the methodology used to underpin the draft recommendations made in it. Perhaps the best way to understand the Productivity Commission's methodology in its Draft Report is to recall a well-known story.

Once upon a time, an economist, a physicist and an engineer were stranded on a desert island with a can of beef and no can opener. The physicist said "Let's put it in the sun: the sun will heat the can, cook the meat and pop it open." The engineer said "No, that won't do: tins are made too strongly. We need a stronger material to force it open. Let's find some sharp rocks and get some leverage." The economist then helpfully remarked "Let us assume we have a can opener."

3. Assuming the problem of monopoly away

The Draft Report has essentially assumed the regulatory problem of monopoly away.

The thesis is that, when it comes to gas pipelines, natural monopoly is not so bad, after all, and if it does really exist, it often has no market power and we are best advised to let the monopoly owner make the decisions that are efficient and best for us. Any attempt to limit or regulate away monopoly rents would do more harm than good by deterring useful investment in pipelines.

In short, it seems we live in Dr Pangloss' best of all possible worlds and we are best advised to accept

the minor inconvenience of large monopoly profits being extracted from the general community by those munificent benefactors who build and operate gas pipelines and distribution systems.

4. Can we assume monopoly away?

Many readers will feel that the Draft Report has dazzled them like a magician's sleight of hand. Yet the argument seems simple enough.

1. Anyone can apply for licence to build a pipeline.
2. *Ex ante*, in deciding to build a pipeline, you will look at expected costs and returns. If the anticipated internal rate of return is higher than the market threshold, the pipelines are socially worthwhile and should be built.
3. If, *ex post*, your returns are liable to be truncated by coverage and regulation, you will revise down your expected returns but not your expected costs.
4. If, after revision, the internal rate of return on the pipeline's cash flows falls below your threshold, you will choose not to build a pipeline.
5. Regulatory attempts to stop monopoly pricing, that is, extraction of monopoly rents therefore do more harm than good. Anticipated monopoly rents are factored into the investment decision itself. The attempt to protect gas users and consumers ends up by denying them the very infrastructure they wish to use.
6. In conclusion, competition between pipeliners, not regulation, is what will benefit gas users and consumers and prevent them from being exploited.

So stated, the argument has all the appeal and elegance of a theorem by Euclid.

Unfortunately, it happens to be wrong.

To see why it is wrong, it is worth examining how this argument was put - better and more carefully - some years ago in *Competition and Entrepreneurship* by Israel Kirzner, an economist in the Austrian school.

5. A neo-Austrian defence of acquired monopoly

Kirzner argued, well enough, that competition was a process, not a static situation as in textbook diagrams.¹ He then observed that "to speak freely of a lack of competitiveness in a market process, we must be able to point to something which *prevents* market participants from competing. What is it that might succeed in rendering particular market participants secure from being competed with – that might make it possible to them to continue to offer inferior opportunities to the market, immune from the pressure of having at least to match the more attractive offers which other participants might be making available? What is it, in other words, which might halt the competitive process? Clearly this formulation

of the question points to its answer. Competition, in the process sense, is at least potentially present so long as there exist no arbitrary *impediments to entry*.² (Original emphasis)

He then observes, fairly enough, that "in the absence of government restrictions on given activities the only possible source of blockage to entry into a particular activity must arise from restricted access to the resources needed for that activity. Without oranges, one cannot produce orange juice. All imaginable obstacles to entry can be reduced, in basic terms, to restricted access to resources."³

The result is that "there is no room for possible confusion between monopoly profits and entrepreneurial profits. In fact it should be apparent that in our view of monopoly the term profits is hardly in place in this context in general. What the monopolist is able to secure for himself (beyond any possible purely entrepreneurial profits which his alertness may discover) is a *monopoly rent* on the uniquely owned resource from which he derives his monopoly position.... Monopoly rents can, after all, be captured not only by monopolist producers but also by monopolist owners of resources selling their resources to entrepreneur-producers."⁴ (Original emphasis).

Unlike the Productivity Commission, Kirzner thus realized that the problem with the Euclidean argument above lies in step 1. The reality is that no one can just get a pipeline licence. A licence is an exercise of sovereign power, of eminent domain, whereby the Crown grants an interest in and over public and private lands. No Minister will grant such licences willy-nilly. An easement for a pipeline is a strategic natural resource.

Faced with this problem, viz, that there *are* strategic, non-reproducible natural resources, Kirzner goes on to argue " *a monopoly position may be won by alert entrepreneurial (and hence competitive) action*. With monopoly understood as a position which confers immunity from the entry of competing entrepreneurs (this immunity arising out of unique ownership of resources), it becomes of interest to inquire into the *source* of such a monopoly position. Clearly the source may be simply the prevailing pattern of natural resource endowment as recognised by the relevant property rights system."⁵

Kirzner then tries to define away monopoly by appealing to the idea that in the long run, everyone has an equal chance to bid for strategic natural resources. " *From the point of view which takes his monopoly ownership of the resources as given, one must describe them [production and pricing decisions] simply as the decisions of a monopolist*. he may find it possible to secure a monopoly profit by restricting the utilisation of his monopolized resource. ... If we attempt to categorize the case in hand from the long-run point of view, that is, as of a date before the *acquisition by our "monopolist" of the entire supply of the essential resource*, things appear in a quite different light. Before our producer acquired unique control of resource supply, he was in no sense a monopolist... Other producers could, if they wished, have purchased some (or all) of the resource supply and proceeded to make the product. ... from the long-run point of view these profits arise not from resource ownership but from the decision to acquire the resource."⁶

The result is that "The long-run interests of the consumers have, in this case, been well served by the would-be monopolist. At the time when he acquired sole control over the resource, every part of the entrepreneurial plan (even his planned restricted use of the resource) meant an improvement in resource allocation, as viewed by consumers, over the alternative entrepreneurial plans then being attempted. ... A long-run view may, we have seen, reveal that the consumer's interests have been furthered by the creation of monopoly. "⁷ The conclusion then follows that " Abrogating the rights of the

monopolist cannot, it is true, nullify the advantages which have already accrued to consumers from the earlier transactions completed by the would-be monopolist [e.g. creation of gas pipelines]. But a social policy which arbitrarily confiscates from entrepreneurs the profitably secure positions their entrepreneurial alertness has achieved cannot fail to discourage such alertness in the future. And since such alertness, even when it leads to monopoly positions, may very well improve the extent to which consumer tastes are satisfied, any discouragement of it must be deplored." [e.g. consumers will lose because no one will invest in natural monopolies again.]

6. The flaws in this defence of monopoly as the outcome of free competition

One notes that Kirzner, unlike the Draft Report, admits the problem with step 1, the opening assumption that anyone can build a pipeline. He admits this is a monopoly right but tries to sidestep the adverse normative welfare economics implications of that admission by assuming that everyone is free to compete for the monopoly advantage of a pipeline licence in the first place.

Unfortunately, the argument fails. It is not true that all persons are free to bid for strategic natural resources or rights. Real economic activity takes place in space and time. Not only does spatial monopoly exist for network routes but not all economic actors exist at one point of time with equal knowledge. Pipeline licences may be allocated on a "first come, first served" basis, with or without a competitive tendering process. Future generations of producers and consumers, by definition, are excluded from the bidding - or asking, or granting - process. Further, how can one describe competition to acquire a monopoly strategic resource as free, fair and open when the future is inherently uncertain, a resource may have future unknown uses and there is unequal knowledge?

The argument that entrepreneurial pipeline monopolies are not welfare-reducing ultimately rests on the concealed assumptions of a spaceless, timeless, economy.

In this unreal JB Clark economy, only capital and labour exist and all investment returns are returns to entrepreneurial investment decisions. The trouble is that, in forgetting space, one excludes location rents for land or land assets such as easements. One is then driven to argue that all monopoly rents are really returns to capital, not to land (natural resource rights). Unfortunately, to argue that monopoly resource rents are a necessary inducement to capital investment is to admit that capital is not getting its normal return and is being mal-invested due to cross-subsidization from captured monopoly rents.⁸

7. Monopoly cannot exist by definition in a two factor model

At the back of the Draft Report is a mental room where the only factors of production are labour (largely ignored) and investors with capital weighing up ex ante risk-adjusted rates of return on investment possibilities. "Capital" is the precious factor of production which needs to be invested to increase economic welfare.

But in this JB Clark model of the economy where the only factors of production are capital and labour, monopoly rents cannot exist by definition. If a monopoly exists, it will be bid for and the return to the investor will equate with the return on investing his capital anywhere else.⁹ As Bohm-Bawerk pointed out, in criticising Clark some ninety years ago, it is a huge analytic mistake to confound "capital" as a

factor of production with "capital value" representing a process of *capitalization*. Once a monopoly profit is capitalized, the investor in that monopoly will naturally be heard to argue that he has no super-normal profit - he is only getting the going rate of return. That is perfectly true but it does not mean the monopoly has ceased to exist through a process of competition - it has simply been traded and capitalized.

Virtually anything can be capitalized, including a monopoly rent or a licence to tax or the right to enjoy an import quota. But it is very wrong to think some of these "capital values" have anything to do with being a factor of production: on the contrary, they represent the value of tribute which may be extracted from production.

It is therefore very disturbing that the Draft Report treats transfers due to monopoly rents as mere transfers and totally ignores the literature on deadweight losses to society from rent-seeking behaviour and the process of capitalization and dissipation of monopoly rents.

In this regard, the report has a fundamental failing: it lacks both a language and a model to start analyzing *the costs and benefits to society as a whole* from the gas access regime. The only "model" it seems to have in its head is the idea that "Regulation reduces returns on investment in gas pipelines. Investment in pipelines is good. Therefore regulation is bad." - a thesis which is intellectually indefensible.

The Draft Report cannot logically support any conclusion on the gas access regime because it never seeks to examine economy-wide excess burdens of monopoly rent seeking behaviour where investors are seeking to capture strategic bottleneck assets such as easements.

8. Forgetting the history of micro-economic reform

If the Productivity Commission looked back at the history of its predecessor, the Tariff Board, it would see a richer model of the economy.

For many years, Australians thought they could defend living standards through "protection all round", a pattern of compensating distortions built on the back of resource rents earned by our export industries. What economists at the Tariff Board realised was that tariffs and import quotas were taxes or licences to tax which damaged the productivity of the Australian economy and living standards. They therefore argued with skill and determination that Australia should remove these distortions and embrace competition in the global market. At the end of the day, protecting monopolistic manufacturers behind a tariff wall created very large deadweight losses.

Accordingly, Australia started to dismantle its tariff walls. However, manufacturing Industry had a legitimate complaint. If they were to be exposed to the full force of international competition on their sale prices, why should they face inefficient, protected, public utilities supplying essential inputs to production such as gas, electricity, water or rail transport monopolies. Micro-economic reform in the area of public utilities was thus an essential complement to, and *quid pro quo* for, tariff reform. Similarly, the campaign to remove indirect taxes on exports through the rebating of indirect taxes (now done through a GST) can be seen as another *quid pro quo* for tariff reform.

The point is that if you are to compete in a global economy and reap the benefits, you have to look at everything which can improve your productivity. Hence, labour market reform, utility reform, regulatory reform have a logical point to the extent, and only to the extent, that they lower the cost structure of the Australian economy. (This does not mean lowering living standards but improving them by getting rid of barriers to competition and production, whether they be archaic and unnecessary labour practices or professional entry requirements or whether they be inflated charges for essential services.)

Unfortunately, this Draft Report, as with the report on airports, has quite literally “lost the plot”. Instead of focussing on achieving the driving of prices for essential infrastructure towards the economically efficient short run marginal cost, it has accepted a process of “reform” which is anything but. “Reform” has, quite understandably, become a mistrusted synonym for “change, usually for the worse”. However, *genuine* microeconomic “reform” should be about eliminating monopoly rents. It is therefore astonishing that in this report entertains the idea that *monopoly rents might have to be paid as the price necessary to bring forth investment in new physical infrastructure*.

For years, the Tariff Board and its successors (including the Productivity Commission) quite rightly gave short shrift to manufacturers who argued that high protection for industries such as textiles, clothing and footwear was the price necessary to provide sufficient industrial employment. Yet, in this Draft Report, the Productivity Commission now accepts the same argument in a different guise when put forward on behalf of the gas pipeline industry.

9. Market power - no connection with monopoly rents?

Another remarkable feature of the Draft Report is the apparent distinction it draws between the exercise of market power and the levying of monopoly rents. It appears that the two things have no necessary relationship with each other; that one can levy a monopoly rent while not possessing market power or being constrained by countervailing market forces.

The Draft Report seems to believe that there should, for example, be no economic concern if the Pacific and New England Highways or the Hume and Princes Highway were sold to two “competing” merchant banks. In each case, there would be competition for drivers and trucks going between Sydney and Melbourne and Sydney and Brisbane. The market power of each highway would be constrained by the other. Of course it would be - but in a very weak sense. The real issue for motorists and the economy is whether anyone seriously believes that two privately owned highways would charge prices equal to short run marginal cost? On the contrary, it is more than a fair bet that both highway owners would be racing to extract as much as they could on the way of monopoly rents, just as a former infrastructure director of Macquarie Bank commented on how a privatized British highway extension was almost a licence to print money.

The point is that so long as you can extract monopoly rents you have market power. It does not matter that it is not absolute power (only a monopolist of all the earth’s air or water might achieve that happy position!). Buyers will always have *some* alternative - even if it is only to change from motoring to walking to Brisbane. At the end of the day, so long as you can persistently charge a price in excess of short run marginal cost and extract monopoly rents, you have market power that matters. Practical businessmen do not worry about theoretical alternatives like customers choosing to walk to Brisbane. They realize that “Monopoly is a terrible thing until you have it.”¹⁰ The very point of having a monopoly

is the ability to extract monopoly rents.

In this regard, the Commission's preference for lighter handed "monitoring" of natural monopolies may be seen as an abandonment of the public interest. The recent ACCC report on airport pricing has shown remarkable increases in charges and profitability once regulation was abandoned in favour of "monitoring". Why should Australian consumers and industry be left exposed to the extraction of monopoly rents by private tax farmers styling themselves "infrastructure owners"? Especially where some of these assets were created at public expense and users now have to pay again for the use of what their taxes built.¹¹

10. Market power of monopolies - eroded by competitive sectors?

Another novel thesis embedded in Draft Report is the charming idea that monopoly power does not much matter because it will be eroded by the competitive sectors of the economy. At pages 31-32 of the Draft Report, it is suggested competition works backwards from internationally competitive product markets to countervail against natural monopoly pipeline owners. This, if true, is a wonderfully comforting theory. We are truly living in Dr Pangloss' "best of all possible worlds" where everything turns out for the best. On this view competition law is simply an unnecessary waste of time and energy, the problem simply does not exist or will go away.¹²

Unfortunately, the theory is not true. The problem of monopoly does not go away. What does go away are the factories, jobs and income driven offshore by high manufacturing input costs in Australia.

It is strange that the Commission also does not seem to realize this optimistic argument is quite inconsistent with the argument (accepted by the Government and the PC itself) that input taxes on exports needed to be removed through GST refunds to avoid damaging export industries. Monopoly rents are just another form of indirect taxation.

11. The strange death of marginal cost pricing

A curious feature of the Draft Report is that it admits prices set equal to short run marginal cost are optimal yet proceeds to spend zero mental effort on how to get to that desirable position.

The obvious difficulty lies in financing large fixed capital costs where short run marginal costs are low. But this should be a challenge on how to recoup or write off such costs as fast as possible so they are no longer a financial obstacle to short run marginal cost pricing. Instead, the Commission seems to consider it acceptable for gas pipeline prices be set at long run marginal cost in perpetuity.

The Draft Report appears ignorant of the traditional Australian land value rating system which captures external benefits of infrastructure and thereby amortizes the fixed costs of infrastructure. The economically and financially shrewd way for a municipality or rural town to operate if it wants gas reticulation would be to levy a rate on land values to pay for network construction and capital maintenance costs by tender and then offer the market (operation of the system once built) by tender at the lowest cost for servicing it. Land rates would service the capital costs while user charges on throughput would be priced merely at operational cost plus the wholesale price of gas bought at the

transmission connection. Harold Hotelling realized that land value rating could provide the key to pricing at short run marginal cost in the 1930s and William Vickrey endorsed the optimality of the concept. Why does the Draft Report then so lightly discard Australia's own experience?

If rating cannot be used and capital costs must be recovered solely from users, then the Commission should be looking to see that these initial capital costs are amortized out of prices as soon as possible and that any "double dipping" on actual capital costs is prevented. This issue is also passed over in silence.

What is worse is that there seems to be a confused idea in the report that competition *for* the market means offering a gas franchise to the *highest* bidder who is left with unrestrained monopoly pricing power. In that scenario, one can *never* get prices down to short run marginal cost: the successful bidder will plead that he has to service forever his capitalized cost of purchasing the monopoly.

Competition *for* the market is different. The purpose should be to get the infrastructure built and made available to the community at the *lowest* cost. The tender should be on the basis that you will only be allowed to charge short run marginal cost plus a mark-up which will be eliminated over time as the capital cost is recouped. We are asking who is willing to charge us *least* as a community for the monopoly infrastructure. This sort of competition *for* the market is akin to how the Commonwealth uses the collective buying power of Australians under the Pharmaceutical Benefits Scheme to put a brake on the monopoly pricing power of foreign drug companies.

12. Access holidays with no BOOT - a free lunch?

Another idea the Draft Report puts forward is that investors may need 15, 20 or 25 years as an "access holiday" during which they can charge completely unregulated monopoly rents as a *quid pro quo* for investing in risky pipelines. The argument is similar to that advanced for patents or for private investment in toll roads.

Leaving aside whether such arrangements are optimal in any case, what is remarkable about the proposals is that it does not propose elimination of monopoly rents at the end of the period allowed for the investors to recoup their money.

When patents expire, no compensation is paid, no one any longer has to pay anything. When toll roads are built by the private sector under a BOOT ("build own operate transfer") arrangement, they are supposed to become free public roads and priced at optimal zero marginal cost.

The *quid pro quo* for an access holiday should be that it is indeed a genuine commercial deal. If you are willing to invest on the basis you can recover your money within the period of unregulated monopoly, you should expect no more. At the end of the period, the infrastructure should revert to the Crown for free public use on the basis that its cost *has* been recovered. At the very least, if the investor is to retain it, regulation should restrain him from including any capital cost as part of his carriage charges.

What the Draft Report seems to forget is that in the case of a pipeline, there is a publicly sanctioned grant of a monopoly easement which overrides the rights of private and public landholders. As with

patents, the Crown grants this monopoly for the public benefit. Why should the public be deprived forever of the possibility that prices should be set equal to short run marginal cost? Increasing returns are a blessing not a curse. The object of economic policy should be to take advantage of them as quickly as possible, rather than let them be used as an excuse to keep up monopoly rents.

13. Summary Remarks

The Draft Report in proposing *de facto* removal of the gas access regime is fatally flawed by its failure to define terms and to define and adhere to criteria for economic efficiency. Such models of economic behaviour as may be gleaned from its pages are so naive as to make one understand why John Maynard Keynes ridiculed the economics of the UK Treasury in the 1930s. *A priori* reasoning built on restrictive and unreal assumptions not only is liable to deceive but leads to public policy disaster.

The Draft Report is a classic example of not seeing the wood for the trees. There is no economy wide perspective on the deadweight losses caused by monopoly pricing of essential infrastructure. There is no recognition of the public interest that where monopolies are granted by public law they should operate for the public benefit. The viewpoint throughout is that of the gas pipeline investor seeking to maximise profits. But it should be recognised that the profits of an investor in a monopoly are by no means necessarily coincident with the public interest, economic efficiency or a social optimum.

Perhaps the Draft Report should have looked at a little more history. The "Golden Speech" of Queen Elizabeth I when she apologised to Parliament in 1601 for the abuses of the monopolies she had granted would be a nice starting point. She did not hesitate to declare in plain English "Since I was Queen, yet did I never put my pen to any grant but upon pretext and semblance made me, that it was for the good and avail of my subjects generally, though a private profit to some of my ancient servants, who have deserved well; but that my grants shall be made grievances to my people, and oppressions, to be privileged under colour of our patents, our princely dignity shall not suffer it. When I heard it, I could give no rest unto my thoughts until I had reformed it, and those varlets, lewd persons, abusers of my bounty, shall know I will not suffer it."

It is clear that the Draft Report supports the protestations of the pipeline industry that it needs a much freer hand to set prices away from independent oversight. Equally, the pipeline industry itself has received immense benefit and growth as a result of the increased competition Australian manufacturing industry has under-gone over the past decade or so. It is clear that the Draft Report sees that the pipeline industry should not be exposed to the same operating disciplines that the national structural changes introduced and international competition have imposed on Australian manufacturing industry.

That the views of downstream industries and other gas consumers have apparently been disregarded and that matters affecting consumers have received such scant attention in the Draft Report is truly of great concern.

PART III: COMMENTS ON PRODUCTIVITY COMMISSION'S DRAFT FINDINGS AND RECOMMENDATIONS

1. **Draft Finding 2.1:** *While transmission pipelines have natural monopoly characteristics, the market power of transmission pipeline owners is constrained by a number of factors, particularly:*

- *the availability of substitutes — that is, the presence of a competing pipeline in the end market and/or of alternative fuel and energy sources;*
- *the size and concentration of users and the competitive nature of foundation contracts;*
- *the elasticity of demand for the final products, for which natural gas is an input.*

The extent to which these factors constrain market power differs across pipelines.

- It is remarkable that the Draft Report arrives at this finding, as it has clearly ignored the evidence provided by end users that their ability to substitute energy sources for gas is limited (technically as well as for contractual reasons), as well as the evidence provided by the ACCC (which referred to ACT decisions) along the lines...“in the past the Tribunal has consistently found that gas prices are not effectively constrained by alternative energy sources and has found the product market to be a gas specific market”.
- Whilst foundation customers effectively underwrite a gas pipeline and enter into an agreement with full knowledge, it is the third party access users who are protected by the Gas Access Regime. These are the consumers who are most exposed to the potential for the pipeline owner to extract monopoly rents (up to the Ramsey pricing level) allowing the pipeline owner to extract a benefit which could otherwise make Australian manufacturing more globally competitive, rather than receive just a marginal improvement.
- This draft finding also ignores the fact that the presence of a competing pipeline in the end market is not clear evidence of competition. For example, in the NSW gas market, for EGP to increase its market share, it must rely on Gippsland Basin producers increasing their production capacity and winning an increased share of the NSW gas market (beyond the requirements of the foundation contracts of the EGP).
- The discussion in this section of the Draft Report has totally ignored evidence provided in submissions from gas users groups that the structure of the gas market is usually characterized by a dominant gas retailer (AGL in NSW; Energex in Brisbane; Origin in SA and Alinta in WA), which either directly or indirectly is part of a vertically integrated business involving distribution networks. AGL is even a significant owner of a major gas transmission business operating in NSW. There is no analysis provided by the Commission let alone recognition of these features of the gas market.

- ➔ The section also has ignored the fact that monopoly rents are currently charged on the Moomba-Sydney Gas Pipeline (see ACCC Final Report on the MSP Access Arrangements Application)..
- ➔ The Commissioners' attention is drawn to Australia's previous two airline policy which delivered limited competition and sub-standard service quality. Two pipelines do not necessarily mean competition!
- ➔ Attention is also drawn to the following excerpts from the NCC's Final Recommendation Report on the coverage of the Moomba-Sydney Pipeline, as it seems that the Draft Report has ignored empirical data in its assessment of monopoly power:-

"7.421 In discussions with the Council, NECG agreed that the elasticity of demand for gas sold into intermediate markets (such as for electricity generation) may be higher than the AGA/ABARE estimates (NECG offices, 14 May 2002). It was also agreed that a small price change in gas could make a proposed generator vulnerable to displacement. In such circumstances, demand for gas could be highly responsive to price movements. Thus, a 4% price shift could have a substantial impact on demand.

7.422 This view is supported by BHP Billiton, which argues that even a relatively small reduction in delivered gas prices would have a significant effect on margins and market outcomes in gas fired electricity generation.

A closer examination of the NECG analysis reveals a totally different picture about the potential effects on downstream industries. For example, the difference between the EAPL access arrangement application (\$52.97 million p.a. for the contract market – NECG data) and the ACCC's draft decision on EAPL (\$32.08 million p.a.) equates to \$0.28/GJ. For a combined cycle gas fired power generator, this is a difference of \$2.25/MWh of output. With estimated new entrant pricing of \$35.40/MWh, this is a significant difference. Thus, monopoly rents in gas have a flow-on effect into electricity (and downstream industries using electricity as an energy source).... (BHP Billiton 2002, sub.24)."

and

"7.428 Incitec states that:

It is critical that gas be delivered to this plant on terms which allow Incitec to match import competition on a delivered Australia basis (Incitec 2001, sub.10, p.5).

7.429 *The Council notes that given the nature of import competition, and the magnitude of gas costs for the company, Incitec's operations are very sensitive to movements in the price of gas. According to information provided by Incitec, a price movement of the magnitude proposed by the ACCC regulatory process would have a material impact on costs.*

For a fertilizer producer (using gas as a feed-stock, as well as an energy source), this difference equates to \$5.50 in a product that wholesales around \$280/te (BHP Billiton 2002, sub. 24)^a

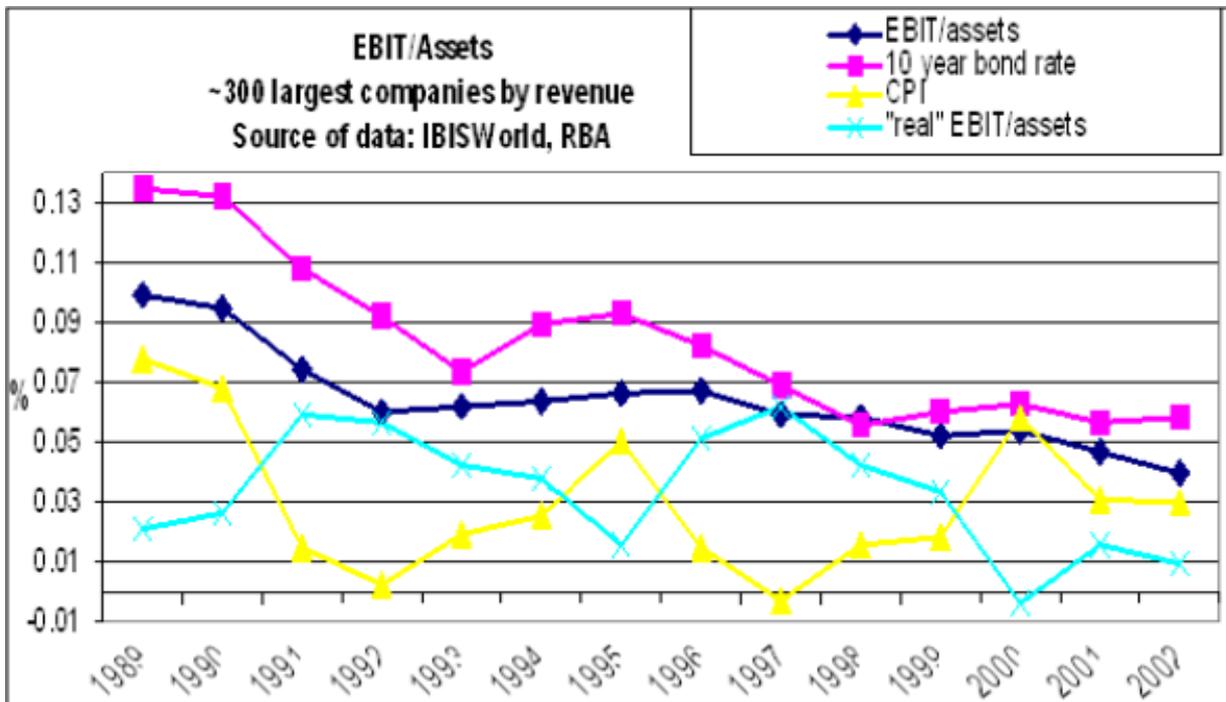
7.430 This information from major gas users in the electricity generation and fertiliser industries suggests that removing monopoly rents in gas transmission (as identified by the ACCC) would result in a material increase in demand for delivered gas by major consumers – and hence, for commodity gas, gas haulage and gas retail services. In particular, a price change of this magnitude could impact on whether a major customer enters or exits the market. This would stimulate competition between gas producers to supply the load, and hence, would enhance entry incentives in upstream and downstream markets.”

2. **Draft Finding 4.3:** *The Gas Access Regime deters and distorts investment, possibly altering the nature and timing of pipeline projects. Pipeline construction might be delayed, for example, or pipelines might be built ‘fit for purpose’. Such alterations can delay the emergence of competition in upstream and downstream markets.*

- ➔ The Commission admits that it “faces difficulties in trying to draw conclusions about the effect of the Gas Access Regime on investments based on the information provided by inquiry participants”. Yet, on the basis of “conceptual considerations”, the Commission arrives at the conclusion that “there is a strong likelihood that the incentive to invest and the nature and timing of investments in the Australian gas market have been affected by the Gas Access Regime. The practical difficulties that regulators face in approving access prices ... and the existence of emerging competition in the natural gas sector strengthen this finding”. No evidence has been provided by the Commission to justify its strong conclusion about investment deterrence. It is also curious how “strengthening competition” strengthens support for its conclusion. Has the Commission undertaken any analysis here to justify that assertion? Does the NSW gas market show “strengthening competition?”
- ➔ The Draft Report, yet again, ignores evidence contrary to that provided by the pipeline industry (in this case pipelines built ‘fit for purpose’).
- ➔ The Draft Report avers that investment is being truncated due to regulatory interference. From this it could be assumed that this is because the WACC awarded by regulators is too low to create the environment for new investment. Recent work on Market Risk Premium and Equity Beta values (copy of report by Headberry & Lim is attached) on MRP etc benchmarked WACC’s awarded by regulators with the general business market This showed that “real” pre tax RoA for Australian business was ~4% compared to regulatory pre tax real returns at 6-8% for network service providers. See the extract below from page 18 of attached report. If competitive business invests at the 4% level as it must to remain operational, then investments in regulated assets at a higher return would continue, as we have observed.

^a Submission 24 is a BHP Billiton submission that included information provided by Incitec.

This data has been analysed and the following results identified.



This analysis 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%)

3. **Draft Finding 4.4:** Information from interested parties supports the view that the Gas Access Regime might have a discouraging effect on innovation and improvements in service offerings.

➔ It is a well known fact that monopolies lack the incentive to innovate and/or improve services. The Commission’s draft finding is not especially enlightening about monopolies’ incentives to innovate, although in the case, it attributes the effect on the Gas Access Regime. And if in fact, pipeline competition is emerging (as asserted elsewhere), then it should be driving innovation. Again, this is selective reasoning.

4. **Draft Finding 4.6:** There are significant compliance and administration costs in the operation of the Gas Access Regime. Delays in decision making have added to the costs.

➔ The Draft Report overlooks the fact that consumers eventually pay for service providers’ costs incurred in the operation of the Gas Access Regime. These costs have largely been accepted by major end use customers, because they consider the benefits of the Regime (reducing monopoly rents) outweigh the costs that have been incurred in the absence of the Regime (higher levels of monopoly rents and transactions costs). The Draft Finding totally ignores the other side of the equation and is based on limited consideration of all relevant

factors.

- ➔ It should be noted that the costs for gas transportation have fallen since the Gas Access Regime was introduced, despite the additional costs coming from regulation. The Productivity Commission's draft finding totally ignores this other side of the equation.
- ➔ The Draft Report notes there are quite large costs incurred by the pipeline businesses in their involvement in the regulatory reviews. One of the reasons the businesses expend so much on their applications and related activities is that regulators permit these costs to be recovered in the permitted revenue – thus there is no incentive on the businesses to minimise the costs. If a cap on costs was introduced there is every expectation that any over-run of the cap would be much more carefully controlled by the businesses' directors.

5. **Draft Recommendation 5.2:** *With the implementation of draft recommendation 5.1, the following objectives in the preamble to the existing legislation and the related objectives in the introduction to the Gas Code should be deleted:*

- (a) *facilitates the development and operation of a national market for natural gas;*
- (b) *prevents abuse of market power;*
- (c) *promotes a competitive market for natural gas in which customers may choose suppliers, including producers, retailers and traders;*
- (d) *provides for rights of access to natural gas pipelines on conditions that are fair and reasonable for the owners and operators of gas transmission and distribution pipelines and persons wishing to use the services of those pipelines;*
- (e) *provides for the resolution of disputes.*

- ➔ The draft recommendation for the deletion of (b) and (d) is strongly opposed by major gas consumers as it will significantly dilute the existing gas code and compromise the interests of consumers, with adverse impacts on the national economy. No evidence has been provided to justify this recommendation. A revocation of the *right* of consumers to access a monopoly asset on fair and reasonable grounds affords the monopoly asset holder a significant increase in market power.

6. **Draft Recommendation 5.3:** *The following elements of s.2.24 of the Gas Code should be deleted:*

- (a) *the Service Provider's legitimate business interests and investment in the Covered Pipeline;*
- (d) *the economically efficient operation of the Covered Pipeline*
- (e) *the public interest, including the public interest in having competition in markets (whether or not in Australia)*
- (f) *the interests of Users and Prospective Users;*
- (g) *any other matters that the Relevant Regulator considers are relevant.*

- ➔ The deletion of (f) ("interests of Users and Prospective Users") is strongly opposed, especially coupled with draft recommendation 5.2 recommending the deletion of (b) and (d). We will only be comfortable if "economically efficient use of, and investment in,...

pipelines..." is equated with prices towards "short run marginal cost". If not, then the elements relating to the interests of users, preventing abuse of market power and access on fair and reasonable terms must be contained in the s.2.24 of the Code and in the preamble.

7. **Draft Finding 6.2:** *The coverage criteria need changing to ensure that the Gas Access Regime is applied to pipelines only when likely to improve economic efficiency significantly.*

- ➔ This recommendation reverses the onus of proof that a single asset operating in a unique easement is in fact a monopoly and able to extract a monopoly rents. There has been no evidence provided to support this draft finding and as noted in section II above, there is no evidence or calculation to support the implicit assumption that a monopoly pipeline will not use its unique position to extract monopoly rents
- ➔ The MGUG would like to see the evidence used by the Productivity Commission to allow it to make this sweeping finding.

8. **Draft Recommendation 6.6:** *The Gas Access Regime should be modified such that the National Competition Council, in making a recommendation that a pipeline should be covered, should also recommend the form of regulation to apply to the pipeline. The monitoring regime should be applied if one of the following applies:*

- *if access (or increased access) would be likely to have the effect of increasing competition to a material, but not a substantial, degree (and if the other tests are met);*
- *if access (or increased access) would be likely to have the effect of increasing competition to a substantial degree, but applying the monitoring regime (with its lower costs) would improve economic efficiency more than would an access arrangement with reference tariffs (and if the other tests are met).*

The current regulatory approach (access arrangements with reference tariffs) should be applied if access (or increased access) would be likely to have the effect of increasing competition to a substantial degree, and if such regulation would improve economic efficiency more than would the monitoring regime (and if the other tests are met).

- ➔ The Code was intended to provide a balance between the conflicting interests of owner and user. This is a major dilution of the Code.

9. **Draft Recommendation 6.7:** *Where the monitoring option is applied, it should apply for a minimum period, say five years. During this period, no one would be able to apply for coverage with price regulation (an access arrangement with reference tariffs).*

- ➔ This presents major risks for gas users, as the Productivity Commission really is admitting that monopoly rents do exist. The Finding implies that even if monopoly rents are identified there is no mechanism to be provided for the immediate extinguishing of these. After 5 years, the end user may no longer be in operation, as their international competitors are not likely to give them a 5 year competition – free holiday. This is dangerous frittering away of the benefit of the Gas Access Regime.

10. **Draft Recommendation 6.8:** *The Gas Access Regime should be amended to provide that where a service provider potentially covered by the Gas Code lodges a part IIIA undertaking, this should trigger an assessment (currently by the National Competition Council) to determine whether the pipeline meets the requirements for coverage under the Gas Code. The Australian Competition and Consumer Commission's assessment of the part IIIA undertaking should be held over, pending the outcome of the coverage assessment.*

→ Why should users, who are the victims of monopoly power abuse **not** have the right to apply for coverage? This is a denial of natural justice!

11. **Draft Finding 7.3:** *Regulators are currently seeking to have their powers extended so they can obtain information between access arrangement reviews. This extension has the potential to add unnecessarily to service providers' compliance costs.*

→ The Productivity Commission should acknowledge that the extension of powers for additional information also has the potential to enable regulators to undertake their reviews more effectively and efficiently. Regulatory gaming by service providers has been a major problem for all regulators with insufficient information disclosure being the prime tool used by businesses to obfuscate and extend the review process. The powers being sought here are to ensure that costs are robust and are at arms-length between related parties, and also to facilitate review processes and avoid delays.

12. **Draft Recommendation 8.1:** *Information disclosure under the monitoring regime would be assisted by disclosure guidelines. The National Competition Council (rather than a regulator) would need to develop and update such guidelines. Ideally, this would involve a consultative process that is open and transparent with interested parties.*

→ The Productivity Commission has not undertaken any comprehensive quantification of the costs and benefits of the regime. It has only undertaken partial analysis of the issues and consistently ignored the concerns expressed by gas users, some of whom have provided evidence to the Commission of the continued existence of monopoly rents. This recommendation is rejected by major gas users.

PART IV: ANNOTATED COMMENTS ON DRAFT REPORT

1. Page xx

"... during that this transition"

The assumption that monopoly will disappear from the pipeline industry is like assuming the roads and highways will cease to be natural monopolies. Monopolies based on spatial networks are essentially permanent.

"Cost based price regulation [deters] investment [and] should be invoked only where service providers have substantial market power."

If cost based regulation allows the going rate of return on investment which creates new physical infrastructure there is no deterrence to investment. (Incidentally, there is zero social interest in allowing profitable "investment" in rent seeking.) The point of regulation is to prevent monopoly rents being levied as taxes on the rest of the economy. Whether or not service providers have market power (in whatever sense the PC means), owners of pipelines may still hold control of bottleneck infrastructure and be able to pass on monopoly rents as taxes upon the rest of the economy.

"increasing the threshold test for coverage"

This proposal would essentially leave pipeline owners at large to impose monopoly rents on the rest of the economy.

"significantly above the threshold in monitoring regime ."

As the deregulation of airports has demonstrated, a monitoring regime which reports on the monopoly rents being extracted from users and consumers merely adds insult to injury.

"... a binding ruling of no coverage for fifteen 15 years"

If 15 years is sufficient time for gas pipeline investors, enjoying the opportunity to extract monopoly rents, to recoup their investment, then the *quid pro quo* should be that at the end of 15 years the pipeline reverts to the Crown. After all, it is the Crown which exercises its power of eminent domain to give the pipeline owners their easements supposedly in the public interest. It is not unreasonable that, having extracted the monopoly profits, pipeline owners like other monopolists, such as patent holders, should surrender their monopoly for the public benefit. There is no economic theory which supports the idea that *perpetual monopoly* is a necessary inducement to

capital investment.

2. Page xxiii - para 1

“one pipeline system can transport gas along a specific route more cheaply than two or more independent systems.”

Quite so, but there is also the prior question of getting an easement. It is inconceivable that a Minister of the Crown would let two pipelines run down the same easement or even similar easements. There is therefore a “first come, first in” monopolist’s advantage in getting the first easement.

“... by imposing terms and conditions of access (including price) that limit competition.”

The PC’s focus on limiting competition seems to ignore the damage that monopoly rents embedded in prices can do as disguised excise taxes upon the economy. When there were tariffs, few economists (if any, and certainly not the PC or its predecessors) suggested they did no damage because anyone could set up business behind the tariff wall. The issue is not merely competition but the cost structure which any competitive producers in upstream or downstream markets must face.

3. Page xxiii para 3

“The existence of gas pipelines that exhibit natural monopoly characteristics is insufficient to conclude that these pipelines have enduring market power that they are likely to use to inhibit competition in upstream and downstream markets.”

This quite misses the point. The issue is whether natural monopoly allows the owner of the monopoly to impose monopoly rents as disguised excise taxes upon the rest of the economy.

“ number of competitive forces and factors can impact on demand and constrain market power.”

Again this misses the point. One monopoly can always be constrained by another: a monopoly seller may confront a monopoly buyer, but that is no guarantee that cost savings will be passed on to maximise consumer surplus. Further, even the most rapacious monopolist will be constrained by the fact that there is a limit to what the market will bear, but that does not mean the excess burdens inflicted on economic society by prices above marginal cost disappear.

4. Page xxiii

“further, new pipelines (both transmission and distribution) are often developed in contestable markets,

where they compete vigorously to secure sufficient baseload for the pipeline from prospective users ...”

Of course people will “compete vigorously” to secure a monopoly, especially when that monopoly requires securing easements on a “first-come, first-served” basis. The economic concept of competition requires that there be no barriers to entry. The businessman’s concept of competition often involves getting in first and putting up a barrier to entry. As Mr Rupert Murdoch is reported to have said “A monopoly is a terrible thing - unless you own it.” Competition in the game of rent seeking is not the sort of competition the Productivity Commission (“PC”) should acknowledge as socially worthwhile.

5. Page xxiv para 1

“Many of the vertically integrated public gas utilities have been structurally disaggregated and the separated components privatised.”

This does not guarantee competition. There may be bottlenecks over strategic parts of the network and therefore monopoly rents may still be imposed. The fact that in the Middle Ages there were many robber barons with castles along the Rhine River meant that commerce along the river was subject to greater tolls than if it had been controlled by one vertically integrated monopolist.

“even relatively small investments in interconnecting pipelines can increase the level of competition and change how gas moves between sources of supply and end use markets.”

That is like saying you can get from Brisbane to Sydney by the Pacific Highway or the New England Highway. Quite true, but it will do you no good if the only way into Sydney is over the Harbour Bridge and you must pay whatever toll is demanded. The point is networks are not completely reproducible, there are always bottleneck parts where an uncontrolled owner can extract monopoly rents. You cannot find a free and quick Gladesville bridge into the Sydney gas market. (One should add that even the Gladesville bridge route imposes a cost on motorists seeking avoid the toll, which is the whole point. Taxes, whether explicit or embedded in monopoly rents, create distortions and welfare losses.)

6. Page xxv para 1

“competition has not universally reached a level where a gas access regime is no longer warranted.”

It never will. Spatial monopolies will exist as long as human beings live in three dimensions. If anything, the history of railroad consolidations and previous gas and electricity consolidations in this country suggest the current wave of disaggregation will be followed by a wave of gradual mergers and consolidation to gain the efficiencies of vertical integration.

7. Page xxv para 3

“considerable costs it imposes and its potential to distort and deter investment”

But what about the costs of uncontrolled monopoly rents being extracted from the community? And what is the meaning of the word “investment”? There is a difference between “investment” which *creates* new assets and investment which simply *captures* existing assets (slave owners used to talk of “investing” in slaves!) Society has every interest in deterring so-called “investment” in opportunistic rent seeking such as the capture of previously constructed, publicly funded, assets. There is no net community gain from the transfer of existing assets to new owners, especially when those new owners are set free to start charging monopoly rents for the use of previously free assets (take for example, the \$2 charge levied on every taxi stopping at airports on what were once publicly owned roads. This is simply tax farming.)

8. Page xxv para 6

“practice it has become price regulation of the services available to third-party access seekers from cover pipelines.”

That is hardly surprising nor is it undesirable. It would be far worse for the community if unregulated monopolists had unfettered ability to levy taxes on production by charging monopoly rents far in excess of marginal cost.

9. Page xxix para 2

“Regulators acknowledge that price regulation of third-party access has the potential to result in lower returns on investment than were expected at the time of investment. The debate now is about how to achieve the appropriate balance between ‘truncating’ returns and ensuring that service providers with enduring market power do not make excessive returns..”

Is it? Regulators should have no concern whatsoever with eliminating expected returns from monopoly rent seeking. Any such reduced returns would be reflected in a lower value of the monopoly franchise embedded in easements, not in reduced incentives or true investment in reproducible physical capital.

10. Page xxxi para 1

“price regulation – access arrangements that include reference tariffs – should only be applied where access is likely to have the effect of increasing competition to a substantial degree.”

This recommendation legitimizes excise taxes in the form of monopoly rents. You can have competition in a controlled or taxed market. When there were import quotas for

textiles, there was still competition in the textile industry but the economic damage was still being done by prices being imposed upon the community which were well above marginal cost.

11. Page xxxi para 2

“where there is emerging competition.”

What sort of competition? Competition to secure a monopoly position by being first to serve the market?

12. Page xxxi para 4

“a monitoring regime as an alternative to price regulation..”

What is the point? If regulation cannot prevent the extraction of monopoly rents from the competitive parts of the economy, it would be almost better to have no regulation at all. If monopoly pricing is to be allowed with prices well above marginal cost, what is the point of wasting more money on a bureaucratic exercise in keeping track of how much users and consumers are being overcharged? That is just adding insult to injury.

13. Page xxxi para 5

“transition from price regulation to no regulation in a phased way”

Neither the Hilmer Committee nor Parliament planned or anticipated a movement to zero regulation of natural monopolies. Where was this set out as an objective of national competition policy? It would have been laughed out of Parliament if members had been told the objective of privatisation and national competition policy (sic!) was to erect private monopolies in the place of inefficient state monopolies. At least with inefficient state monopolies, their large workforces saved taxpayers some money otherwise paid out in unemployment benefits!

14. Page xxxii para 1

“the efficient use of, and investment in, a pipeline”

These terms need careful defining. Efficient use should mean price equals short term marginal cost. Efficient investment should mean that when price rises above marginal cost because of scarcity rents, that surplus is paid into an escrow account for the purpose of augmenting supply, as would happen in a competitive market. It is *not* efficient investment to hold an auction on the basis that the “first-come first-served”

investor will grab the whole market.

15. Page xxxii paras 6-7

The proposal to gut the effectiveness of the gas access code by weakening the current criterion reflects a complete disregard of the damage done to the economy by the levying of monopoly rents.

16. Page xxxiii para 3

“to provide prospective investors with binding rulings (for a period of 15 years) to the effect that the pipeline would not be covered.”

This is like a temporary patented monopoly granted to inventors. Carrying the analogy through, pipelines should become public assets or be available with a zero charge for sunk capital at the expiry of the period of monopolisation. If the access holidays are necessary to encourage investment, once it's over, it should be over.

17. Page xxxiv para 1

“would deliver more efficient outcomes.”

One suggests it would deliver *less efficient* outcomes in the form of Balkanized bottlenecks with each infrastructure owner seeking to levy excise tariffs as the gas passed through various pipelines.

18. Page xxxv

In regard to draft finding 2.1, natural monopoly will always exist. Countervailing power may simply represent bilateral monopoly and does not necessarily imply any benefit for economic efficiency in the sense of prices approaching short run marginal cost. Further, to say that the elasticity of demand for the final products curtails monopoly power is about as silly as saying that tariffs have no ill effects because there is a limit to how much consumers will pay for textiles, clothing or footwear. This was not an argument the Industry Commission or Tariff Board seem to have accepted.

19. Page xxxv

In relation to draft finding 2.2, one notes that a network owner servicing a new market may have little market power *ex ante* but he may certainly gain it by being first to enter and foreclose future competition.

20. Page xxxvi

In relation to draft finding 4.5, the report does not attempt to measure deadweight losses over the economy from monopoly rent pricing. Nor does it even acknowledge the possibility of malinvestment due to opportunistic rent seeking.

21. Page xxxvi

In relation to draft recommendations 5.1 and 5.2, these seem to assume that investment *in pipelines* is the *sine qua non* of economic activity (rather like Stalin thinking investment in steelworks maximized Soviet economic welfare). There is no reference to the maximisation of social surplus. Whatever happened to the optimality of marginal cost pricing? Are private sector white elephants created in an "Oklahoma land rush" to stake out monopoly franchises representative of greater economic efficiency than public sector white elephants?

22. Page xxxviii

In relation to draft recommendations 5.3, the proposed deletions of (d), (e) and (f) are astonishing. Tariff reform removed protection from processing industries with a view to advancing the long-run welfare of Australian consumers. Australian producers are entitled to demand that the naturally protected infrastructure sectors of the economy should be forced to price competitively, so that Australian producers have a real chance to compete on world markets.

23. Page xxxviii-xxxix

Draft finding 6.4 and recommendation 6.1, for reasons indicated above, are quite unacceptable. They simply legitimise monopoly rent seeking.

24. Page xl

Draft recommendation 6.6 and draft finding 6.9 are also unacceptable. Again, the inquiry is merely legitimising in monopoly rent seeking.

25. Page xli

In relation to draft recommendation 7.1, why should reference tariffs be set to cover the long-run (replacement?) costs of providing access to services where infrastructure was already constructed at public expense, as in the case of the Moomba-Sydney pipeline? Are users expected to pay twice and thrice over for sunk capital costs? And why should an investor in an established monopoly be compensated for regulatory risk? Is this not akin to saying that investors in brothels or sweatshops should be compensated for the possibility that their

activities might be outlawed? As a matter of social policy, investors in monopolies cannot be compensated for the loss of monopoly without burdening society in perpetuity with the cost of the very monopoly it may desire to abolish. As for multi-part pricing and price discrimination aiding efficiency, some definition is required.

26. Page xliii

What is the purpose of monitoring? To tell astute investors how well they are doing?

27. Page xliv

In relation to draft recommendation 8.3, if regulators looked at profitability in terms of internal rates of return *on actual cash flow spent on operations and new physical investment*, they might find that many utilities are over recovering their historic investments at a remarkable rate.

28. Page xlv and xlvi

In relation to draft recommendation 9.1 and draft finding 9.9, any access holiday should end with the pipeline reverting to the Crown on a BOOT basis, or at least with all capital costs written out of the future capital base for regulatory purposes. If infrastructure owners want to take their chances on an unregulated monopoly for 15 years they should accept a consequence that that is indeed the deal - they have the gift of an easement over public and private lands for nothing for 15 years on the condition that they give up the monopoly at the end.

29. Page 2 para 2

The Draft Report makes no attempt to analyse the economy wide benefits, costs and effects of the regime. There is no modelling whatsoever of the welfare costs to the economy of rent seeking or prices for essential or strategic infrastructure being held above short run marginal cost. The report thus fails to address a key term of reference.

30. Page 17 Table 2.6

The use of gas as an input to production shows how important it is for export competitiveness to limit monopoly rents being imposed as quasi-excise taxes on export industries.

31. Pages 18-19

It is strange that the Draft Report in discussing natural monopoly does not discuss the difficulty of reproducing a spatial network where one requires easement rights. Easement rights are a

key barrier to entry securing the incumbent from new competitors. Further, the Draft Report mentions the "costs" associated with acquiring easements. However, the cost of easements basically is compensation for disturbance as reference to Land Acquisition laws show. Landholders cannot charge a premium or rent or revoke an easement at some future time if the pipeline owner does not pay a rent demanded. Essentially, the easements, *as easements*, cost nothing. It is not unreasonable that the public, having allowed the Crown to help the pipeline owner acquire easements by virtue of eminent domain, should expect the pipeline owner not to extract monopoly rents from this public gift.

32. Page 20 para 4

Do pipeline owners pay annual rents to the farmers over which their pipelines go? Can a farmer order a pipeline owner to take his pipe and go elsewhere? The answers are: No!

33. Page 22 para 1

The observation that monopoly and competition can coexist basically defines the problem away. First, it is not necessarily easy for a new entrant to secure parallel easements. Second, before a new entrant even tried to enter, prices would have to be well above short run marginal cost or even long run marginal cost. The damage of monopoly lies in the extraction of monopoly rents and it is cold comfort to know that another would-be monopolist might join in the feast.

34. Pages 22-23

One notes the admission that the "creation of easements" is a barrier to entry. Its significance however, appears to be barely understood. The point is that an easement involves a compulsory acquisition under State law which represents an intervening on behalf of the pipeline owners. It is not a characteristic of competitive markets that you can enlist the weight of the State to force people to let you set up your business on their lands. This is a rare privilege and as such should be seen as a fundamental barrier to entry. The idea that another service provider could get a parallel easement is rather fanciful. What Minister would grant a licence for duplicate infrastructure and face the wrath of thousands of landholders angered by seeing their lands dug up a second time? For all practical purposes, an easement from point A to point B is a "first-come first-served" once-off opportunity.

35. Page 24 para 6

In the absence of regulation, concentration is a highly likely outcome in industry with high sunk costs. Competition is very unlikely to be stable.

36. Page 25

The so-called “implicit” competition to sign up “foundation shippers” may merely represent a process of bringing them in as co-monopolists who would take their rent in the form of cheaper costs as against other potential users. It would be interesting to test the theory propounded here against a historical examination of how Henry Flagler used favourable railroad shipping contracts to assist John D. Rockefeller in establishing the Standard Oil monopoly (as competing oil producers complained that they were unable to get such favourable transport rates). This was seen also in the difficulty TXU had in joining into the SEAGas Consortium for a pipeline from Port Campbell to Adelaide.

As for the “explicit” competition of a competitive tender process, that might indeed limit the pipeline owner’s ability to earn monopoly rents from the party offering the tender but that in no way limits his ability to extract monopoly rents from others.

Further, why should favoured large users (if there are such) pass on any sharing of advantages onto the general public? In this regard, the ACCC’s comment on Page 26 shows a sharper appreciation of commercial and economic reality than the Productivity Commission appears to possess.

37. Page 27

“The smaller the number of users of a transmission pipeline the greater is the bargaining power of users in relation to pipeline owners.”

Quite true, but bilateral monopoly does nothing to ensure that monopoly rents are squeezed away by competition and that prices are driven toward optimal short run marginal cost. In this, and indeed throughout this report, it would be rather helpful if the Commission could set out its theoretical model of welfare economics. Just whose welfare are we supposed to be maximising? Where is the public interest?

38. Page 28 para 2

This version of competition totally misses the point of the damage done by monopoly rents. It is like saying that it does not matter how much consumers are overcharged for water from a municipal system which they paid for generations ago, so long as they have the option of paying again to put in rainwater tanks. The fact that there is *some* possible limiting competition which means a monopoly price will always be less than infinity in no way means that prices are going to be driven to optimal short run marginal cost. No textbook ever said that monopoly did not matter because monopolists were invariably unable to extract *every last farthing* of surplus.

39. Page 29 para 5

The Draft Report fails to accept that downstream industries made very large investments based on a cost structure which existed prior to deregulation. What about downstream users who decided to build factories when a pipeline such as the Moomba Sydney pipeline was in public ownership and subject to price regulation? Nor is there any reason to think that time horizons of pipeline and downstream investors in relation to capital investment are the same.

What happens when the contracts underpinning the downstream investment expire? The downstream investment will not necessarily be paid off but the facility is then at the mercy of the monopoly pipeline owner. Alternative fuels are usually more expensive (eg oil) or environmentally unacceptable (eg coal). To contemplate relocating a major industrial facility is not realistic, and can be likened to lifting the MSP to relocate it to supply Moomba from the new gas facility at Darwin.

40. Page 30 last para

Example of SEAGas pipeline: the users are three energy companies, but not industrial companies.

Not only is vertical integration impossible for most gas users, it would be highly inefficient and destructive of economies of scale if they all sought to do so. To the extent that larger users might feel forced to seek vertical integration, it is a sign that the Gas Code is failing by being too lax in allowing pipeline owners to extract monopoly rents which vertical integration seeks to bypass.

41. Page 31

It is precisely because many gas users compete in international markets and do not have an ability to extract monopoly rents that they need any monopoly rents stripped out of their input costs. Monopoly rents are like embedded excise or sales taxes which cannot be passed on to international markets. In the end, such taxes destroy exports and reduce Australia's national income. This view is accepted by the Commonwealth Government as GST, for example, is excluded from exports.

42. Page 36 para 6

The idea that existence of elasticity of demand and supply in product markets and other input markets will wash away the effects of monopoly seems like some sort of "born-again" Panglossian economics where monopoly no longer matters because "competition saves". It would be interesting to have some theoretical analysis supplied by the Commission for this theory.

43. Page 38 last para

The Australian Gas Light Company was given a Sydney gas distribution monopoly in 1837 under a Royal Charter granted by His Majesty William IV. The possibility of any other supplier being given a franchise today to dig up Sydney streets again is so low as to be virtually zero. After all the whole principle behind the energy reforms was a recognition and acceptance that it is economically stupid to build another pipeline when the existing one will provide for the needs!

44. Page 39 para 6

The idea that users can willy-nilly build pipelines over other people's land to bypass monopoly pricing pipelines seems rather overstated. Even a big industrial company would still have to get a ministerial licence and still deal with possibly irate landholders.

45. Page 40 para 4

This paragraph is extraordinary. First, it admits that final price regulation of retail prices may be the only method of society countervailing the monopoly power of gas distribution networks. Second, it amazingly ignores the obvious possibility that retailers selling both gas and electricity are in a *better* position, rather than a weaker position, to limit competition between the two energy sources. It is hard to see that the people of Canberra gained anything from one supplier eliminating competition between gas and electricity.

46. Page 40 paras 7 and 8

The Envestra submission represents a better damnation of private utilities than a Ralph Nader could invent. If the sort of competition we see does not increase utilisation of the network and result in price reductions towards short run marginal cost, what is the point of this sort of "competition" which does not do what competition is supposed to do - move things to a social optimum of maximum supply at least cost. Incidentally, to the extent that Envestra complains of a squeezing of its retail margins, it should be pressing for transmission pipelines to be pricing at short run marginal cost as soon as possible (i.e. as soon as actual cash capital outlays have been recovered).

The observation that retail margins of 5-10% are too low to incentivise the increased penetration of gas does not stand up. Big retail outlets like Myers have retail margins of 2-3% and they still keep building new stores.

47. Page 41 para 3

It is amusing to see Alinta suggesting that price capping is desirable for competition. If a monopoly can face countervailing power by price regulation at the end, why not save time and

deal with monopoly directly?

48. Page 42 para 3

It is perfect nonsense to suggest that residential users can readily replace natural gas by junking the capital they have invested in furnaces and ducted heating and switching over to reverse cycle air-conditioning plants or multiple wood stoves. It would be interesting to see the Commission's calculations on the cost of refitting every Australian house using gas. It is one of the sad economic costs of monopoly that it often forces a waste of past investment. The OPEC price hikes of the seventies caused the premature scrapping of domestic oil furnaces while the electricity price hikes of the eighties forced many households to junk electric fan heaters. Could the Commission please explain the social benefits to the Australian community of allowing monopoly gas pricing to force households to junk gas furnaces?

49. Page 69 para 5

It is quite reasonable that regulation of a natural monopoly seeks to ensure that monopoly rents are eliminated by limiting prices to estimated efficient costs of supply. This is a fair *quid pro quo* to the community for the privilege transmission and distribution network owners get in the form of access over other people's lands.

50. Page 71 para 3

The Commission appears to have no model to simulate general equilibrium welfare effects. Indeed, the whole Draft Report suffers from a chronic failure to consider the economy wide impacts of monopoly pricing. It is as though the Commission were doing a report on tariff protection of the textile industry and only looking at the potential loss of investment in clothing factories in assessing the economic impact of reduced tariffs.

51. Page 74 para 3

The Commission's previous (and rather different) report on the national access regime is clearly correct in identifying monopoly pricing as being of no less concern than outright denial of access. The economy wide efficiency costs and excess burdens of monopoly rent pricing should be at the centre of this report, rather than being persistently pushed aside.

52. Page 79 para 1

The benefit from curbing monopoly power also includes the elimination of quasi excise taxes in the form of monopoly rents and driving of prices towards efficient short run marginal cost.

53. Page 81 paras 1 and 6

Envestra is essentially stating that the Productivity Commission is quite wrong in thinking there is sufficient competition in gas transportation. It is not enough for efficiency that, at a high enough cost, people will engage in bypass. Envestra is saying that the gas access regime is not strong enough to force access at a reasonable enough price to avoid the need for bypass.

While there is a lot to be said for non-discrimination and open access as a starting point, that alone does not solve the excess burden problems created by monopoly rents being collected on a non-discriminatory basis by a monopolist standing in control of the bottleneck. The robber barons on the river Rhine did not discriminate - they plundered all with equal pleasure.

54. Page 82 paras 3 and 4

This explanation of the impact of monopoly rents raises the obvious question as to why the Productivity Commission has not modelled the efficiency benefits of the gas access regime in a similar manner to the modelling of the benefits of abolition of sales taxes on exports. If the Commission could model the benefits of indirect tax reform, it should be able to model the economy wide benefits of eliminating monopoly rents.

But future customers are the source of real competition as opposed to duopoly sharing of monopoly rents. The *sine qua non* of monopoly is, in the final analysis, a barrier to entry.

55. Page 83 para 8

But regulatory error does not just affect investment in pipelines. Regulatory error in the opposite direction of allowing monopoly rents discourages investment in upstream and downstream industries which would be otherwise internationally competitive. The pipeline industry is not the only industry in the Australian economy, nor the only industry deserving of investment. A general equilibrium, economy wide, modelling is required. As seen in the MRP and equity beta paper by Headberry/Lim 2004 (copy of paper attached), regulated businesses are awarded higher returns than industry in general gets

56. Page 84 paras 1, 2 and last

The suggestion that gas access regulation might only benefit upstream suppliers is quite inconsistent with the Productivity Commission's major assertion that competition is perpetually increasing with more connections between basins and markets. This is a glaring self-contradiction negating the fundamental thesis underlined in the report

Transfers which represent the destruction of monopoly rents *are* efficiency gains. If transfers did not matter, why did the Tariff Board and the Industry Commission shed such anxious concerns over the costs imposed upon the overall economy by the transfers effected by tariffs and import quotas? A pure transfer is a very different thing to a transfer which is accompanied

by an excess burden due to a distortion of the price mechanism. Monopoly rents are distorting transfers because they are paid out of a wedge between price and (optimal) short run marginal cost. As to the benefits being difficult to measure, we regret to point out that those benefits are the very point that this report should be focusing on. There is virtually no attempt to do an economy wide cost benefit analysis in terms of economic welfare.

If the Productivity Commission has found that the gas access regime has lowered prices for gas transmission and distribution, it *must* assess the economy wide benefits of these lower prices *before* advocating a relaxation of regulation which will lead to higher prices and monopoly rents. To fail to do so is to fail to address the terms of reference of the inquiry.

57. Page 85 para 1

Section 4.4 only deals with the impact on investment *in pipelines*. Nowhere does the report address the question of economy wide investment or the maximisation of overall economic welfare. The Australian economy does not consist solely of gas pipelines.

58. Page 85 para 6

If this report has its way privately owned "public utilities" will be more free than ever to become private tax collectors and extract monopoly rents from the public which in some cases paid for the construction of the pipelines for which monopoly rent is now being sought.

59. Page 88 para 5

The ACCC's remark is more than revealing. It confirms the suspicions of many observers that the gas code is already far too lax.

60. Page 89 para 7

Of course regulatory discretion is perceived as a regulatory risk to the continued extraction of monopoly profits, just as abolitionism was perceived as a regulatory risk to investment in slavery. This report persistently slides over the distinction between "investment" in the sense of buying an income stream of any kind or form and "investment" in the true economic sense of creating new physical capital equipment. The economist should only be concerned with investment in the second sense. As John Maynard Keynes recognised, economics is not about the defence of the interests of *rentier* classes (however much most of us aspire to membership of those classes.)

61. Page 92 paras 4-6

Asymmetric truncation does *not* necessarily deter investment in physical capital. It does deter

investment in capturing monopoly rents in the form of non-reproducible easement rights. The discussion on truncation everywhere ignores the imputed rent attributable to the easement rights. Just as a land developer discounts the price he will pay for a block of land for any ongoing land tax when deciding to buy it for a building, so a rational pipeline investor will discount the value he attaches to the easement. Only if the terms and conditions are so onerous is that the easement itself requires a negative valuation will investment in physical capital equipment be discouraged. The Productivity Commission fails to see this analytic distinction between land and capital, because the easement is given away for free by State Governments and the imputed rent is not explicit. The whole of the discussion on truncation is vitiated by this fundamental analytic error.

However whilst putting this case of asymmetric truncation of returns so eloquently on behalf of the pipeline owner, the Draft Report makes no attempt to equate this risk to what happens in the competitive environment where if a competitor sees that a business is enjoying handsome profits, then he will immediately enter the market, and so reduce the profits of the initial business by reducing its market share. Regulators are there to replicate market pressure on a monopoly, and truncation of super profits is a natural result of competition. Equally if a business is going to fail, there is no safety net to support it. Why should pipeliners be exempted from the disciplines of competition?

62. Page 94 para 6

The Duke Energy argument amounts to an argument that profitable projects should be allowed to subsidise unprofitable ones. This is a curious argument for the Productivity Commission to appear to entertain, given the almost hysterical objections it has taken to cross subsidisation in other areas of the economy (even to the extent of pretending externalities - which would justify "cross subsidisation" - do not exist).

63. Page 98 para 3

AGL appears to suggest that monopoly rents are the price of investment. If this were true, then all capital investments should be able to earn monopoly rents.

64. Page 99 para 3

Murrumbidgee Shire Council should have been told that it might have returned to the more efficient system of rating on land values to defray the capital cost of the pipeline and offer it to tender at the lowest operating charge. It is rather amusing (in a sad way) that world renowned economists such as Harold Hotelling and William Vickrey have looked with envy at the Australian land value rating system as a means of financing public works while in the 21st century we are busy forgetting our contributions to practical economics.

65. Page 105 para 1

John Maynard Keynes once observed that if the job of capital formation were left to a casino it would be likely ill done. The question needs to be asked whether it is wise or efficient to have an economic system that encourages people to throw money into risky projects on the basis that their losses may be vindicated by the capture of high monopoly rents. Capital can be quite mis-allocated when it is invested with a view to securing speculative monopoly profits. The Melbourne land boom of the 1890s saw capital invested in developing suburbs which lay fallow for decades. At this moment, the Reserve Bank seems rather anxious that investors in residential real estate are tolerating net running yields as low as 2% on the assumption monetary policy will underwrite capital gains in perpetuity.

However as noted in the paper MRP and equity beta by Headberry/Lim, 2004, the returns awarded by regulators are not lower than the competitive market enjoys. The Draft Report continues to accept the false allegation that returns they award are too low. The Draft Report should include factual data to support its thesis of low returns.

66. Page 108 paras 3 and 4

The Draft Report sees difficulty in assessing the impact of regulation on pipeline investment and then decides to approach the difficulty on a conceptual basis. It fails to look at what pipeline investment is *needed* in Australia that would be commercial at the average investment returns achieved in the competitive market. It fails to look at what pipeline investment is occurring overseas in the regulatory environments that apply in each of these jurisdictions. It fails to examine what returns apply to overseas pipeline investments and compare these to the returns awarded by Australian regulators.

But is the “chilling effect” on physical capital formation or upon speculative investment to secure future monopoly easements? The resources rent tax which extracts a higher and higher proportion of super profits above the threshold rate of return (i.e. resource rents) has a chilling effect on “investment” in securing oil drilling leases, but it has been defended as improving the allocation of capital while preserving resource rents to the Crown.

67. Page 109 para 3

No evidence has been advanced to justify the conclusion that the regime deters and distorts investment. The argument that the lure of monopoly rents might also distort investment has simply not been considered.

68. Page 110 para 8

But Energex and the Commission both seem to be labouring under a simple neoclassical model where the distinction between capital investment in the sense of physical capital formation and land in the sense of capture of monopoly easements does not exist.

Schumpeter did acknowledge the distinction between “investment” in land or capturing monopoly rents and investment in new physical capital or productive techniques. He did, after all, write a history of economic analysis!

69. Page 111 para 5

Here again is the recurring theme adopted in this report that monopoly rent is the “just and due” reward of investment. If only all investors could be so blessed!

70. Page 112 para 2 and 4

It is a contradiction in terms to say that a natural monopoly does not possess market power. To be able to extract monopoly rents is the end and benefit of monopoly.

We are unaware that economic theory now blesses monopoly rents.

71. Page 113 para 4 and 6

If this is true about duopolies etc, the Productivity Commission should come out of the closet and urge abolition of the *Trade Practices Act*. Any anti-competitive behaviour can always be disguised as a price no one would want to deal at. (To be fair to critics of intervention, there is an argument that such Acts are unnecessary in the absence of legislated or natural monopoly but that is not the argument the PC is adopting - it seems to think here that unregulated natural monopoly is fine.)

The authors cited are right in saying the trigger for regulation is not the number of firms. But they do point out that natural monopoly (i.e. barriers to entry) *is* a trigger for regulation. The quote opposes the PC thrust in this report. The quote emphasizes access to the market for potential competitors. This is what the gas access regime tries to do.

72. Page 114 para 4

The academic literature is not systematically analyzed. Nor is there any discussion of economy wide excess burdens. The conclusion is drawn out of fairly thin air.

73. Page 116 para 4

Users may be willing to be on-charged for regulatory costs to be protected from monopoly rents being extracted as much higher prices! End users end up paying for these costs in any case. But the Commission, yet again, ignores evidence from users who have stated that they are prepared to wear such costs as they consider that the benefits of access regulation outweigh the costs which they eventually bear.

74. Page 118 para 5

Of course, it is easier and cheaper for a monopoly to negotiate in an unregulated situation - it simply tells customers to "take it or leave it". Very simple, very quick and very efficient - except for the economy as a whole. If the cost of regulation were the only consideration, society would stop worrying about policing a lot of things, from extortion racketeers to drug dealers.

75. Page 119 last para

1 cent per gigajoule is worth it for the economy to be protected against monopoly pricing for a key industrial input.

76. Page 124 para 4 and last

Quite right. Lobbying costs by gas pipeline owners seem to have paid off in this report. The potential transfers (and resulting economy-wide inefficiencies) may be very large if the outcome is similar to the PC-inspired deregulation of airport charges.

Pure transfers are different to transfers funded by wedges between prices and efficient short run marginal cost. This is a basic point the PC repeatedly gets wrong. There is no analysis anywhere in the report of deadweight losses (excess burdens) or price distortions caused by monopoly rent extraction.

77. Page 125 para 8

Competition to grab monopoly is socially wasteful. Competition to seize a monopoly advantage *should be condemned* by regulators trying to protect genuine *laissez faire, laissez aller* (which in the original French mediaeval tournament sense meant "a fair field and no favour").

78. Page 134 Box 5.2

As to the importance of subparagraph (e) we note there is a strong public interest in improving Australia's export competitiveness, especially as tariff protection has been reduced. The whole thrust of microeconomic reform has been to ensure that Australia's productivity and living standards are maintained and improved in a globalised economy.

79. Page 134 Box 5.3

As to subparagraph (b) replicating the outcome of competitive market is a significant objective insofar as it mandates the removal of monopoly rents.

80. Page 136 para 3

The removal of monopoly rents should be a clear and overriding objective of the gas access regime.

81. Page 141 last para

What student of economics considers that the pursuit of economic efficiency does not involve preventing monopoly abuses? This is a false antithesis.

82. Page 143 para 3

This paragraph raises profound theoretical problems. The Commission must explain where and why competition is inimical to efficiency and it must also explain how efficiency differs according to short-term and long-term considerations. It appears the Commission is trying to say that monopoly rents are a socially desirable thing because they are the price of investment in the long run. If that is what the Commission is trying to say, then it should say so and defend that thesis. If it is not trying to make this argument, then it needs to explain what argument it is trying to make.

83. Page 147 para 6

We note that Newmont is arguing for a stronger, not a weaker, gas code. In the face of this sort of evidence it is surprising the Commission is recommending a weaker gas code.

84. Page 149 first para

If preventing the abuse of market power, including extraction of monopoly rents, and opening up access is not to be an objective of the gas code, what is? The deletion of (b) and (d) deprive the code of any useful purpose.

85. Page 151 para 5

The Commission does not discuss the ambiguity inherent in the phrase “the service provider’s legitimate business interests and investment in the covered pipeline”. As noted before, there is a large difference between a so-called “investment” in a licence to tax and an investment which creates new physical capital. If an investor purchases a publicly built pipeline which has been fully written off for a price of \$5 billion, does that mean he has a legitimate right to tax gas users some \$750 million per year in perpetuity?

86. Page 152 para 3

Putting to one side the particular case (about which we make no comment), the abstract question needs to be asked whether if the tender process was a tender for a monopoly and licence to tax, why should the public tolerate it? The actions of one Parliament or government cannot be held to govern any community in perpetuity. The Commission never discuss the distinction between incentives to invest (in the genuine sense of creating new physical infrastructure) and incentives to simply capture monopolies and licences to tax. There is a public interest in promoting the former and a public interest in exterminating the latter.

87. Page 159 para 1

This is a remarkable submission considering that distribution networks are local monopolies.

88. Page 163 last para

The term “material” should be retained. Rather than the gas code being weakened it should be strengthened to eliminate opportunities for capturing monopolies and operating licences to tax.

89. Page 165 para 3

The phrase “whether or not in Australia” is not all at redundant. It emphasises the key point that infrastructure reform should be directed towards enhancing Australia’s export competitiveness by ensuring essential monopoly services are available at least cost to producers.

90. Page 166 para 8

The NCC is correct. A gas transmission pipeline is like a highway. It is hardly surprising that such a monopoly would be covered.

91. Page 171 para 2

If coverage could only be sought after unreasonable denial of access, a gas pipeline monopoly could go on forever. Foundation customers and the pipeline owner (which might perhaps be a joint-venture on their behalf) could sew up the pipeline’s capacity and have reason to deny any further access. How are end users to be prevented in such a situation from the extraction of monopoly rents?

92. Page 173 para 4

As the Commission has not undertaken any modelling of economy-wide deadweight loss, it cannot come to this conclusion without the necessary evidence.

93. Page 173 Draft Finding 6.2

No real evidence to support this finding.

94. Page 177 Draft Finding 6.4

This test would deprive the gas code of most of its purpose.

95. Page 180 para 2

The real point is not whether there is competition between different energy sources. There always has been and there always will. The issue is whether gas is being provided to the market at the cheapest possible transport cost which excludes all monopoly rents. The objective should be to ensure that prices are driven toward short run marginal cost which is the economic optimum.

96. Page 182 last para

The Commission has not proposed any logical or consistent methodology for assessing whether the benefits outweigh costs. At a minimum, such an inquiry has to look at economy-wide deadweight losses which this inquiry has simply ignored.

97. Page 185 Draft Recommendation 6.4

This recommendation is not based on any adequate reasoning.

98. Page 187 last para

While one wishes to improve employment for lawyers, there is enough useful legal work to go around without inviting ridiculous and sterile semantic debates.

99. Page 188 para 2

Why not have the legal test for coverage based on legally identifiable barriers to entry? The grant of easement privileges is a good marker for transmission and distribution pipeline monopolies which should be regulated. Having received a privilege from the public, they should be accountable to the public.

100. Page 191 Draft Recommendation 6.6

This again would substantially deprive the code of any meaning.

101. Page 194 Draft Finding 6.9

Pipelines are monopolies enjoying publicly-sanctioned privileges. Any member of the public should have standing to make sure they are accountable for their privileges.

102. Page 195 last para

This gives the Commission's whole argument away. It admits there is a problem of monopoly but suggests there *might* be action after five years of monopoly abuses. Draft Recommendation 6.7 is illogical dithering.

103. Page 196 para 3

It would be quite outrageous to limit applications to the regulator which administers the monitoring regime. Normally it is the victim of an abuse who was given the right to apply to a Court, not an arbitrator or umpire.

104. Page 197 Figure 6.2

Any person should be able to act.

105. Page 201 Box 7.2

The real problem of utility regulation is the servicing of fixed capital costs. Two part tariffs with lump sum access charges and flow through charges based on short run marginal cost are a rational way to proceed. Further there is no reason why the access part of a two-part tariff should not be an annual lump sum contribution to servicing and amortizing capital based on a land value rate reflecting the value added to the serviced land.

106. Page 205 paras 4 and 5

The Commission for once recognises the optimality of setting prices equal to short run marginal cost. Unfortunately it has nowhere addressed its mind to how one might get to this desirable position while servicing capital costs but not allowing the extraction of monopoly rents. In this most fundamental sense, the report is a massive intellectual failure. It seems to say the problem cannot be solved and the best we can do is allow monopoly rents as a form of remuneration for capital investment. One might suggest the authors could usefully read Hotelling and Vickrey on these subjects.

107. Page 206 Box 7.5

Many years ago, Vickrey pointed out that scarcity or congestion and tariffs for a monopolist did not bring forth the normal competitive supply response of increased capacity. He therefore suggested that such scarcity or congestion and tariffs be paid into an escrow account to underwrite further capital investment.

108. Page 208 para 2

Regulatory takings are an interesting issue. However, one should draw a distinction between regulatory takings which confiscate the fruits of genuine new physical capital investment and regulatory takings which simply exterminate a monopoly or unwarranted privilege. For example, few people would today defend investors in slaves or tariff quotas and most would think such investors lucky to get any compensation at all. Many people would also argue the recent extensions and further proposed extensions of patent and copyright terms are thoroughly unjustified extensions of monopoly and, if the chance ever arises, they should be abolished without any compensation. There is no property in the right to impose upon the public.

109. Page 211 para 9

“at least sufficient to meet efficient costs” leaves an unlimited ability to allow extraction of monopoly rents. How is this consistent with the Commission’s admission that prices should be driven towards short run marginal cost for efficiency?

110. Page 213 para 6

Once capital costs are recovered, regulators should be free to drive prices towards short run marginal cost. As noted above, there is no reason why capital costs could not be covered by land rates in two part tariffs, a policy recognised as optimal by Hotelling and Vickrey

111. Page 214 draft Recommendation 7.1

(a)(i) and (b)(ii) are rejected, for reasons given above.

112. Page 215 last para

Why should regulators not focus on the removal of monopoly rents? These are the fundamental source of economic efficiency and excess burden.

113. Page 217 para 4

It is unfortunate that regulators have to act to some extent on behalf of consumers. But the current system of regulation has no systematic provision for consumer advocates. Utilities can recover their regulatory costs from user charges, but no part of the prices paid by the users is set aside to fund legal or economic advocacy for users. If regulators are to be strictly confined to the position of umpire (an argument which is certainly tenable) then there must be a *quid pro quo* that user groups get equal funding for legal and economic representation as is available to the monopoly utilities they are opposing.

114. Page 218 para 4

The central planning point is a red herring. Most other industries are not natural monopolies and the analogy is entirely misplaced.

115. Page 219 para 3

Of course pipeline owners would like access pricing models which are not cost based and allow them to charge what the market will bear.

116. Page 219 para 8

Congestion or scarcity tariffs should not be tolerated unless they are paid into a trust fund or escrow account which is strictly limited to the provision of new capital works which will then be treated as pre-paid for and not allowed into the regulatory base.

117. Page 223 para 1

The Commission does not suggest how this fixed capital expenditure should be written off so that prices can be driven to efficient short run marginal cost. Nor has the Commission examined how the so-called capital bases have been manipulated up through valuations well above the original actual in cost of construction. In competitive industries, you do not get the

chance to recover capital costs many times over.

118. Page 237 last para

Using prices paid in a competitive tender to set a capital base is fraught with danger if the regulatory system is not well-defined. There can be a bootstrapping process whereby the more that is bid the more can be recovered through user charges. The bidding should be for the least cost provision of the capital works in operation to given standard, if the community is to get the benefit of competition, much as the PBS represents a bidding on behalf the Commonwealth Government for the community for the supply of pharmaceuticals overseas by companies. The two types of bidding are fundamentally different.

119. Page 248 paras 7 and 8

The Commission here admits that foundation customers may be sharing in co- monopoly power. As noted much earlier, the recognition of this possibility undermines its benign assessment of the nature of competition and 'countervailing power" in relation to gas pipelines.

120. Page 256 Box 8.1

But what are the economy-wide benefits of non-monopoly prices set at short run marginal cost? Economic theory does provide some guidance.

121. Page 257 para 5

The Commission seems to think that the traditional view of all gas pipelines as natural monopolies is becoming outdated because there are sometimes two or three serving a market. This is like saying that the Pacific and New England Highways are not monopolies and it would not matter if they were both privatised and a couple of merchant banks were allowed to charge what they like for them. Is this what the Commission really thinks?

122. Page 258 para 1

The caveat regarding natural monopolies appears not to be noticed by the Commission.

123. Page 259 para 4

Of course there will be less lobbying once monopoly gas pipeline owners have got what they want! Once one has the power to extract monopoly rents why should one waste money except on such minimal lobbying as is necessary to preserve them.

124. Page 261 Draft Recommendation 8.1

This Recommendation is rejected for reasons set out above. But one also wonders how “extreme” rapacity has to become before it is socially unacceptable to the Commission.

125. Page 264 paras 8 and 9

The ACCC’s scepticism of the Commission’s proposed price monitoring perhaps reflects its recent experience with the deregulation of airport pricing on the basis of an equally naive Productivity Commission report.

126. Page 272 last para

Why should those enjoying a publicly sanctioned privilege not be required to answer to the public in full? Is it that the size of monopoly rents being extracted might scandalise the plebeians?

127. Page 274 para 3

The commercial negotiations seem to be designed as a Dutch auction to maximise monopoly rent in favour of the service provider.

128. Page 275 last para

So much is obvious. But if prices representing scarcity rents are not required to be applied towards new investment, then existing owners can reap monopoly rents in perpetuity, just as Sydney Airport is now protected from competition from Badgery’s Creek for the indefinite future. The whole point of natural monopoly is that it is hard to get a franchise from the government to create a new pipeline or a new airport.

129. Page 277

This chapter suffers from the commission’s chronic failure to define what it means by “investment”. Does it mean economy wide investment? Does it mean investment in the creation of new physical capital equipment? Does it mean “investment” in acquiring monopoly easements? Does it mean “investment” in acquiring a license to tax? As noted before, investment which creates new physical capital is generally desirable but investment which seeks to capture monopolies whether over new technologies, patents or spatial networks is hardly beneficial to the public interest. The failure to define the meaning of terms vitiates the discussion in this chapter.

130. Page 309-312

If access holidays are to be allowed for 15 to 25 years, the *quid pro quo* should be the infrastructure reverts to the Crown at zero cost and is then available to users at short run marginal cost. Just as toll roads are temporary monopolies reverting under BOOT arrangements a similar approach would give at least some modicum of a second-best for users who would otherwise face perpetual monopoly. The object should always be to get prices down to efficient short run marginal cost. If a temporary monopoly is granted as a second-best method of recovering large fixed capital costs then, if somebody is willing to build on the basis of that monopoly, at the end of the period he should be regarded as having had his chance to recover their bet.

131. Page 351 para 6

The argument that access regimes should be "light-handed" out of regard for the property rights of pipeline owners and freedom of contract is entirely weakened when it is understood that the property rights of landholders were overridden in the first place to give pipeline owners these publicly-sanctioned easements. Having had the run of other people's lands (paying nothing but compensation for disturbance), they can hardly be heard to complain if the public expects them as a *quid pro quo* not to extract monopoly rents and to supply gas at no more than minimum cost.

132. Page 359 last para

Whose property rights? Would the Commission think a landholder justified in blowing up a gas pipeline running over his land if he does not like it? *He* may resent not collecting a share of the monopoly rents; he may simply not like the pipeline, yet his property rights seems to count for nothing. In PNG natives take a rather robust view on this subject and simply pull down mobile phone towers or other utility infrastructure laid over their land without their permission. This observation underlines the extent to which pipeline owners possess unique monopoly licences backed by the force of the State.

133. Page 360 para 3

The Commission's attitude here is reminiscent of the wonderful sentiment "The public be damned. I am working for my stockholders." uttered by William Vanderbilt of the New York Central in the gilded age. Indeed, the phrase seems an appropriate reflection of the whole report.

ENDNOTES

1. Kirzner (1973, pp 89-94)
2. Kirzner (1973, p 97)
3. Kirzner (1973, p 99)
4. Kirzner (1973, p 109)
5. Kirzner (1973, p 131)
6. Kirzner (1973, pp 199-201)
7. Kirzner (1973, p 240)
8. In a related context, the argument was often made in the nineteenth century that land value taxation was unwise because the “unearned increment” on land was necessary to promote railroad and other investment. This argument proved sufficiently embarrassing once its sub-optimality implications became apparent that it was quietly abandoned, see Dwyer (1980, pp 205-209). It is therefore amusing to see it resurface in the context of this Productivity Commission Draft Report. *Plus ca change, plus c'est la meme chose.*
9. The “profits” from rent-seeking behaviour are usually dissipated either *ex ante* or *ex post* through “competitive” processes, as noted in Hylton (2003, pp 13-14, 18-19). That is why the Commission’s remarks on “competition” for a monopoly are so hopelessly naive. Until and unless one can distinguish and define the differing meanings of the terms “capital”, “investment” and “competition” one will be in a perpetual muddle.
10. Attributed to Rupert Murdoch by Lawrence Grossman, *The Electronic Republic*
11. Taxi users at Canberra and other airports have to pay a toll each time they use what used to be a free public road. How does this private tax improve economic efficiency? Nor should it be forgotten that the Moomba-Sydney pipeline was publicly built and sold subject to a price control regime. How is economic efficiency improved if gas users have to pay a monopoly rent (which does even have the excuse that it was “necessary” to induce construction of the pipeline)?
12. A view remarkably similar to Lord Melbourne’s complacent view on social conditions of the Irish peasantry “They become absorbed somehow or other.” see Zeigler (1976, p262).

REFERENCES

Dwyer, Terence Michael (1980) *A History of the Theory of Land-Value Taxation*, Ph.D. dissertation, Harvard University, University Microfilms, Ann Arbor

Hylton, Keith (2003) *Antitrust Law: Economic Theory and Common Law Evolution*, Cambridge University Press

Kirzner, Israel M (1973) *Competition and Entrepreneurship* University of Chicago Press

Ziegler, Philip (1976) *Melbourne: a biography of William Lamb 2nd Viscount Melbourne* Collins, London

Attachment 1

**FURTHER CAPITAL MARKET EVIDENCE IN
RELATION TO THE
MARKET RISK PREMIUM AND
EQUITY BETA VALUES**

**used by regulators for regulated businesses
in the National Electricity Market**

by

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

for

Electricity Consumers Coalition of South Australia

December 2003

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 authors.

Whilst Advocacy Panel funding has assisted the report to be prepared, the content and conclusions reached are entirely the work of the authors.

“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 assets are likely to be much lower over the coming decade or so than over the previous two decades.”¹

RBA Governor Ian Macfarlane

¹ “Economic Opportunities and Risks over the Coming Decades” by I.J. Macfarlane, Governor, RBA, 13 November 2003)

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Executive Summary

Regulated network businesses are generally considered to be conservative investments, and these businesses market themselves accordingly. Rating agencies also rate companies operating monopoly network assets as investments having a very secure and predictable revenue stream, and, as such, imply an expectation that the returns they earn would reflect the conservative nature of the companies' earnings and would therefore be lower than the returns earned by more risky companies.

Australian regulators, under the National Electricity Code, are required to set a revenue cap for non-contestable (monopoly) network service providers, and have adopted the Capital Asset Pricing Model to determine a regulated return for these businesses.

There is some recent evidence that points to Australia regulators determining higher than expected rates of return compared to their counterparts in comparable overseas jurisdictions. This evidence is examined in the Report.

The evidence from recent research indicates that a Market Risk Premium (MRP) of 6% and an equity beta (β_e) of 1.0 currently used by Australian regulators in the CAPM formula are too high, and that a MRP of 3-4% and a β_e of 0.3-0.7 are more appropriate assumptions, particularly in the light of recent capital markets developments.

This Report provides evidence from analyses of capital markets to substantiate other recent research findings on MRP and β_e .

Using financial data from the largest 300 companies operating in Australia, this Report shows that:-

- nominal and real returns earned by Australian companies are lower than the regulated returns determined by Australian regulators for electricity (and gas) networks/businesses;
- Australian regulators use MRP data extending from over 100 years ago, and this does not realistically reflect the current and prospective outlook for the financial environment – more recent data should be used;
- Australian regulators have disregarded the “conservative” rating of network businesses by determining an β_e of unity;
- Australian regulators are arguably in error in their use of the CAPM formula by:-

6

- applying a MRP generated from historical depreciated actual values to an asset value (of the regulated business) using the depreciated optimized replacement cost method; and
- applying a gearing of 60% debt and 40% equity when the gearing typically used in capital markets is as high as 77% debt.

These factors compound the initial MRP and β_e assumptions by inflating the Weighted Average Cost of Capital resulting in the granting of high returns which distort the investment decisions of the regulated businesses, and negatively impact on the international competitiveness of downstream (competitive) enterprises.

In order to ensure that the key CAPM inputs resulting from the analysis of *current* business performances are correct and robust, these inputs were then tested against other financial indices and comparable businesses - the ASX accumulation index and the property market. The outcome of this further testing demonstrates remarkable consistency with the conclusions drawn from the financial analysis of the sample 300 companies.

The Report's primary finding is that Australian regulators are granting regulated networks MRP and β_e values which are too high and are outside the realm of latest empirical estimates derived from capital markets.

1. Introduction

There are a number of network assets in Australia for which it is widely accepted should not be replicated as to do so would create unnecessary investment and would be financially inefficient to do so. The owners of these network assets have a unique position of being a 'natural' monopoly with regard to the supply of the services these assets provide, notwithstanding that these assets are owned by corporations from both the public and private sectors. To ensure that the owners of these assets do not abuse their monopoly position, the return these assets are entitled to earn is independently regulated.

Government appointed regulators are provided with the responsibility of setting regulated maximum guaranteed returns for such businesses over a specified regulatory period, commonly over 5 years. In setting a (forward looking) return for such assets, regulators seek to establish parameters which will replicate the risk/reward returns achieved by enterprises normally operating in the competitive business environment.

The regulators overall are required by the National Electricity Code (NEC)²

“to set a revenue cap with an incentive mechanism (such as CPI-X or some variant) for non contestable transmission network services.”

and

“to adopt a process which eliminates monopoly pricing, provides a fair return to network owners, and creates incentives for owners to pursue ongoing efficiency gains through cost reductions.”

Australian energy regulators have elected to use the Capital Asset Pricing Model (CAPM) as the principal tool in setting a regulated return on assets employed by the monopoly businesses operating in the national electricity (and gas) market. The National Electricity Code details extensively in Chapter 6, schedule 6.1, the way the CAPM formula³ is to be used in developing a weighted average cost of capital (WACC) for regulated businesses.

Essentially the CAPM sets out the relationship between debt, equity, gearing, risk premium, risk profile together with the tax effects. Allowing appropriate inputs to the elements of the CAPM permits a relatively mechanistic approach by regulators to set an assumed WACC for each regulated business.

² Australian Competition and Consumer Commission, NSW and ACT Transmission Network Revenue Caps, 1999/2000 – 2003/2004, Final Decision , 25 January 2000, page ix.

³ Extracts of this section of the code are included in appendix 1

Since the system of setting regulated revenues commenced, regulators have generally adopted the following core parameters⁴ when setting a WACC:-

1. A gearing debt to asset value (debt plus equity) of 60%.
2. A risk free rate using 5 or 10 year Australian government bond rates.
3. A debt margin range of 100 to 150 basis points.
4. Imputation credit value of 50%.
5. Debt beta range of 0.0 to 0.2.
6. Equity beta (β_e) range of 1.0 to 1.1.
7. Market risk premium (MRP) of 600 basis points (6%)

There is, however, a growing view that regulators responsible for the electricity and gas markets in Australia are awarding higher than expected WACC's than their counterparts in other comparable overseas jurisdictions, such as in the UK and the USA. For example, Pareto Associates carried out a study on behalf of BHP Billiton (BHP-B) as part of its response to the recent revenue application by GasNet. In that report, Pareto noted:-

“However, there is substantial divergence between judgments on values for the return on equity. UK regulators judge that equity markets see regulated utilities in the gas, electricity and water industries in (generally) comparable terms – and come down with estimates for the return on equity that are very close for all three industries. This has not been the case in Australia. The judgment of Australian regulators is that equity is more costly than in the UK, and substantially different for different utilities. We were not able to identify evidence that supports the need for this disparity. It is our view that financial markets would be expected to see regulated utilities in (generally) consistent terms regardless of geographical location.”⁵

Pareto Associates went on to note:-

“It is clear that the major cause of the differences for estimates of the return on equity between the UK and Australian regulatory decisions is that Australian regulators have accepted higher values for the market risk premium than do UK regulators; and higher – and much more varied - values of equity beta.”⁶

As will be shown in this Report, there is a substantial body of evidence that the MRP of 600 basis points (6%) and equity beta of 1.0 currently used in the CAPM formula by Australian regulators are both too high and that levels of 300-400

⁴ These figures are summarised from a range of regulatory decisions for energy transport companies carried out over the past six years.

⁵ Pareto Associates Pty Ltd, The weighted average cost of capital for gas transmission services, June 2002, page (ii)

⁶ *ibid*, page (ii)

basis points for MRP (3-4%) and equity beta levels of 0.3-0.5 may be more appropriate to the profile of risk applying to businesses with a guaranteed revenue stream.

Whilst there may be extraneous reasons for the continued use by Australian regulators of what might be construed as excessively generous figures, the contention of this Report is that these have not been articulated by regulators. Whilst there have been many public statements made by regulated asset owners and others to the effect that higher WACC's are needed to encourage investment regulated assets, *it is not the role of the regulators to set returns on monopoly assets which are greater than those received in the competitive market place.*

Nevertheless, there appears to be recognition that more research on Australian capital markets is needed to support recent empirical studies which have concluded that Australian regulators have been generous in awarding higher WACC's than would appear justified. For instance, the Essential Services Commission of Victoria recently noted that:-

“...additional evidence from the capital markets should be available at future reviews, at which time [it] envisaged placing far more weight on the latest empirical estimates than it did in the Draft Decision.”⁷

The purpose of this Report is to examine the financial performance of a large sample of businesses and by doing so provide additional evidence from Australian capital markets to demonstrate (or otherwise) whether the market risk premium and equity beta values used by Australian regulators are too high compared to current financial performance of businesses as a whole, and if so, to present the evidence to regulators in order that the new evidence can be used as part of the overall development and setting of fair and reasonable returns for regulated businesses. Rewarding monopoly electricity businesses with excessive returns can have a negative impact on the performance of all competitive downstream industries operating in Australia. Perhaps just as importantly, awarding higher than appropriate WACC's can lead to excessive and inefficient network investments by regulated businesses.

The approach taken in this Report is to examine the returns achieved by enterprises operating in the competitive environment, particularly focussing on the larger public and private businesses. Regulators are tasked with ensuring that the decisions they make regarding returns for regulated businesses replicate the outcomes which should be obtained by businesses operating in the competitive environment. To achieve this outcome, regulatory calculations must be based on inputs achieved with competition, that the actual regulatory outworkings are not only consistent with the returns obtained in a competitive environment but that *they reflect the outcomes being earned at the same time the*

⁷ Review of Gas Access Arrangements, Final Decision of the Essential Services Commission of Victoria, October 2002, page 342.

regulatory decisions are made – that is, the regulatory decisions must use as inputs, data derived which are coincident with regard to time, and not based on data relating to different economic circumstances or excessively dated data.

There is always the risk that data derived from the particular and extrapolated to the general may give distorted results. In order to ensure that the results obtained from examination of the sample of enterprises operating in the competitive environment can be extrapolated, the results of the sample are compared to the average financial performance of listed businesses included in the ASX 200 accumulation index. The ASX 200 Accumulation index was selected as this provides the investment return from both the growth of the asset and the dividends issued by companies.

Further, as the property market has many features consistent and comparable to regulated businesses, comparison will be made of the common features and with the returns achieved through investment in property.

Gearing has a major impact on the WACC, and an analysis is carried out to establish the validity or otherwise of the appropriateness of the 60% gearing assumed to apply to regulated businesses.

2. Recent Analyses

A survey of the literature has revealed that a number of recent studies have provided evidence that Australian regulators have made determinations which favour regulated network businesses by awarding higher WACC's than those awarded by their comparable overseas counterparts.

In 2002, Pareto Associates presented a comparison between the WACC's awarded by UK regulators and Australian regulators and provided a graphical presentation⁸ showing that the return on equity element of the WACC awarded by UK regulators is significantly lower than those of Australian regulators.

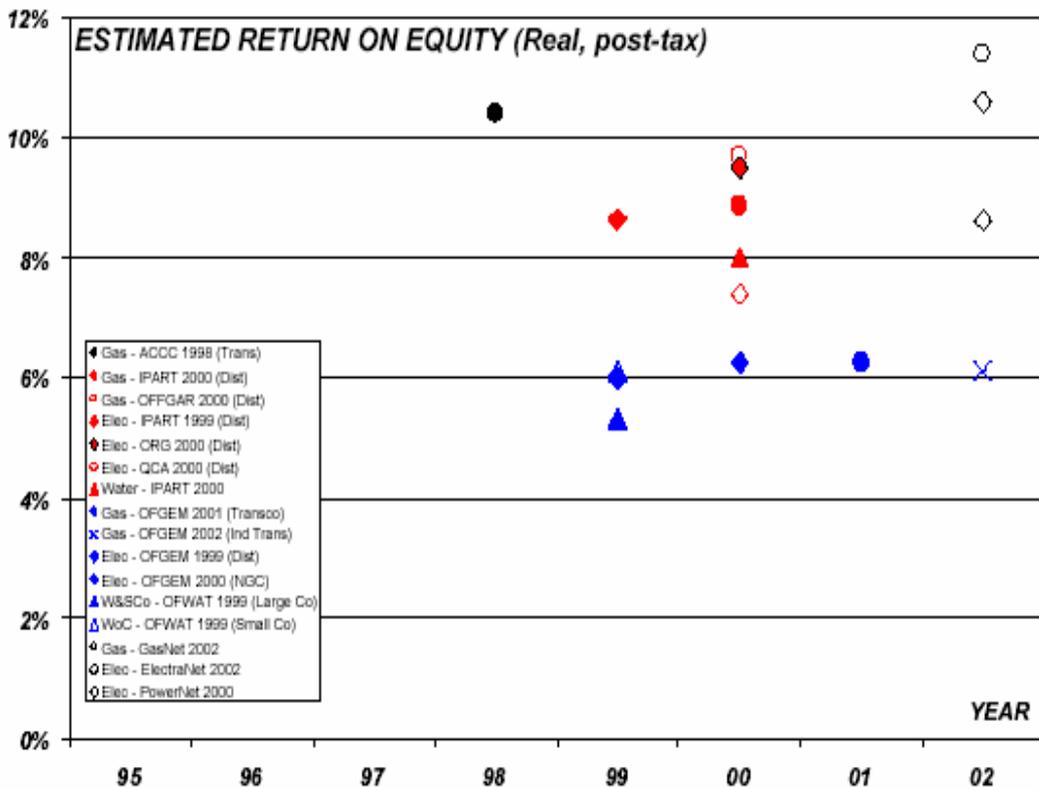


Figure 2 Comparison of estimated cost of equity from UK and Australian regulators' decisions.

[NB. The blue markers denote overseas decisions and sit on the 6% line; the black and red markers denote Australian decisions and range between 7.5-11.5%]

⁸ Pareto Associates Pty Ltd, The weighted average cost of capital for gas transmission services, June 2002, page 24

The Pareto Associates analysis also shows that the return on debt element of the WACC awarded by UK regulators exhibits a high degree of consistency with the equivalent returns awarded by Australian regulators, raising the issue as to why there is such a disparity with the allowed equity returns.

Other recent research carried out by other analysts involved in regulatory reviews confirms the conclusions from the Pareto analysis. For example:

1. NERA (2001)⁹ for the ACCC found that equity returns granted by Australian regulators are higher than those of overseas regulators in the UK and the USA. They state:-

“The Australian Competition and Consumer Commission (ACCC) commissioned NERA to survey declared post tax regulatory rates of return across various jurisdictions in the United Kingdom and North America.The results of this survey are summarized in the following two tables.

Table 1.0
Vanilla post-tax WACC's across jurisdictions

UK Regulators	Vanilla Post Tax WACC	US Regulators	Vanilla Post Tax WACC	Australian Regulators	Vanilla Post Tax WACC
Ofwat 1999	4.3-5.6%*	FERC 1995	8.11%	ACCC (MAP)	6.37%
CC 2000	6.45%	The California Public Utilities Commission 1998	5.93% & 6.52%	ACCC (CWP)	7.64%
Offer 1997	5.04-6.48%			ACCC (Transgrid)	6.86%
Ofgem 2000	4.77-5.17%	The Massachusetts Department of Public Utilities 1995	7.09% & 6.61%	IPART (AGLGN)	6.36%
Ofgem 2000	4.57-5.33%			ORG (EL DBs)	6.8%
MMC 1997	5.46-7.31%	National Energy Board 1999	5.43%		
Ofgas/MMC 1997	5.06-6.51%				

*+small company premium + embedded debt premium

⁹ International comparison of utilities' regulated post tax rates of return in North America, the UK, and Australia, a report prepared by NERA, March 2001

Table 1.1
Average real post tax rates of return across jurisdictions

	North America	United Kingdom*	Australia
Return on equity	8.8%	6.9%	10.1%
Return on debt	4.8%	4.4%	4.6%
Vanilla WACC	6.6%	5.6%	6.8%

* Where a range has been given then the midpoint of that range has been used to calculate the average.

As can be seen from Tables 1.0 and 1.1, Australian regulators are, if anything, declaring higher vanilla post tax WACC's than in other jurisdictions examined. Purely based on the declared returns examined in this survey, Australian regulators appear to offer approximately the same or higher returns than North American regulators who in turn appear to offer significantly higher rates of return than in the United Kingdom.”

What the NERA analysis shows is to highlight that the jurisdictional differences are modest with regard to returns on debt, but the returns awarded by Australian regulators on the equity component of the CAPM formula are significantly higher, by between 15% and 45% higher in a relative sense. As Market Risk Premium (MRP) and Equity Beta (β_e) are the two variables determining the equity return element, it therefore follows that Australian regulators must be awarding a relatively higher value for one or both of these elements¹⁰.

2. Mercer Consulting (2002)¹¹ for the Essential Services Commission of Victoria (ESCoV) opined that MRP should be ~3% points. In their report to the ESCoV they stated:-

“For the purpose of this letter, having forecast long term Australian shares returns we have derived the *implied* ex-ante Australian shares ERP. Thus it is as an outworking of our forecast for Australian shares returns, we identified the arithmetic ERP to be 3.0%. We did not calculate a geometric ERP as we have carried over the preferred use of arithmetic shares return (when assessing an investment strategy). The calculation is summarized in the next table.

¹⁰ There have been assessments from those representing asset owners (eg Network Economics Consulting Group) disputing this NERA work.

¹¹ Letter to ESCoV July 2002 from Mercer Investment Consulting.

Equity Risk Premium	% per annum
Australian shares	9.4
<i>less</i> Australian government 10-year bond	<u>6.4</u>
Arithmetic ERP	3.0

If one were to make a provision for the impact of imputation, the estimation of the implied ERP would increase by the component of the Australian shares return reflected in the tax credits associated with personal taxation. Implied from our asset allocation modeling for institutional superannuation schemes, the appropriate ERP increases by 1% to 4%. The reason is that shares get a tax advantage over bonds relative to the pre-tax base case and a higher implied ERP is required to ‘solve’ the equation.”

Equity Risk Premium (with imputation)	% per annum
Australian shares	9.1
<i>less</i> Australian government 10-year bond	<u>5.1</u>
Arithmetic ERP	4.0

As to the outlook for future financial rates of return, Mercer concludes with the view that:-

“Our forecast of Australian shares returns *over the next ten years* is lower than that historically observed. We believe that a consensus of market participants agrees with this view.”

3. Network Economics Consulting Group (NECG) in its report¹² for Transend (the electricity transmission business in Tasmania) advises that there have been a number of recent studies into MRP with results ranging from 3.6 to 7.1 – the arithmetic average for MRP included in these studies is 5.1. Despite these results, NECG surprisingly recommended to Transend that an MRP of 7% should be sought from the ACCC.
4. The Energy Users Association of Australia/Energy Action Group submission¹³ to the ACCC regarding the Transend application extends the earlier Pareto Associates work to include regulated returns in the United States. Again the results show that much of the WACC differential is attributable to the higher returns on equity being permitted by Australian regulators.

¹² Weighted average cost of capital for Transend, Submission to the ACCC by the Network Economics Consulting Group, March 2003

¹³ Transend revenue application, submission to ACCC and report to NEM Advocacy Panel, EUAA/EAG, June 2003 ,appendix A

5. The Allen Consulting Group analysed equity betas for the ACCC (2002)¹⁴, and assessed that for Australian and international gas transmission companies equity beta ranged from -0.3 to 1.04, averaging 0.3 to 0.4. They summarized¹⁵ the results of their analysis as follows:-

“The re-levered equity betas (for a benchmark gearing assumption of 60 per cent debt-to-assets) are shown in Table 1.1 below. The figures represent the proxy equity betas obtained by taking the simple average of the asset betas derived for the individual firms in each of the markets and re-levered to the regulatory-standard gearing level (with the figures and parentheses showing the average if the negative equity beta observations are excluded).”

Table 1.1

RE-LEVERED EQUITY BETA ESTIMATES DERIVED FROM AVERAGE ASSET BETAS – 60% DEBT-TO-ASSETS

Beta Estimates	Tax Term Excluded from Levering Formula		Tax Term Included in Levering Formula	
	Debt Beta = 0	Debt Beta = 0.15	Debt Beta = 0	Debt Beta = 0.15
Australian Companies ¹	0.69 (0.69)	0.66 (0.66)	0.68 (0.68)	0.66 (0.66)
USA Companies	0.16 (0.25)	0.10 (0.19)	0.17 (0.26)	0.10 (0.20)
Canadian Companies	0.02 (0.23)	0.02 (0.25)	0.03 (0.25)	0.02 (0.26)
UK Companies	0.15 (0.29)	0.06 (0.19)	0.14 (0.29)	0.05 (0.18)

It should be noted that, prima facie, gas transmission companies have a higher risk profile than electricity companies, as the Gas Code places some of the risk for usage volume with the gas pipeline company, whereas the Electricity Code insulates the business from such volume risk by awarding revenue caps, which are unaffected by volume.

6. Some regulators have acknowledged in recent regulatory decisions that an MRP at 6% could be at the high end of the acceptable range for MRP.

“Indeed, the evidence discussed above (including the new information received since the Draft Decision) would suggest that many market practitioners would adopt an assumption about the equity premium that is lower than the assumption of 6 per cent that the Commission has adopted in previous decisions and in the Draft Decision.”¹⁶

Whilst deciding not to change from the generally accepted level of MRP, the ESCoV concedes that:-

¹⁴ Empirical Evidence on Proxy Beta Values for Regulated Gas Transmission Activities, Report for the Australian Competition and Consumer Commission, July 2002 by Allen Consulting Group

¹⁵ *ibid*, page 5

¹⁶ Essential Services Commission of Victoria Review of Gas Access Arrangements Final Decision October 2002, page 336

“While such an assumption 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.*” (emphasis added)¹⁷

The import of the last observation seems to suggest that the (unspecified) concern the ESCoV has for the viability of the regulated businesses and their incentives to invest has outweighed the evidence that reducing the generally accepted level of an MRP of 6% has validity. Regrettably ESCoV failed to elaborate on the basis of its concern for the “long term consequences” of its past assumptions.

Summary of recent analyses

Overall, based on recent research by other (and widely disparate) parties, there is a strong view that the values of $MRP = 6\%$ and $\beta_e = 1.0$ currently used by regulators are too high when compared to the current business climate and, by implication, should be reduced.

¹⁷ Ibid, page 336

3. Market analysis and the CAPM formula elements

This Report postulates that Australian regulators have overlooked several important factors in choosing the values for certain key variables used in the CAPM.

Some of these factors are:-

1. Two world wars, with a number of significant other outbreaks of hostility.
2. A major depression and a number of significant recessions.
3. An extended growth period after WW2 during which it was Australian government policy to provide significant protection to Australian industry.
4. Faster travel and lower transport costs between countries eliminating the “tyranny of distance” that protected Australian industry until the latter stages of the 20th century.
5. CPI peaking at 22.4%, and 10 year bond yields reaching 16.40%¹⁸.

Against this backdrop, each of these influences will have had its impact on the returns that business in a competitive environment would have achieved. Thus, an approach using long term historic data to set the market parameters introduces significant distortions, and in effect uses CAPM elements which are not relevant to the regulatory period for which a forecast future return is being assessed.

It must be noted that the forecast period is generally for 5 years. For such a relatively short forward forecast, the recent past does provide a better and more realistic indication as to what may happen in the short term future in terms of the determination of key CAPM variables. The near past generally more closely represents the environment in which the regulated businesses will be operating, and so provides the basis for setting returns which more reasonably reflect the short term future.

The discontinuity referred to above is demonstrated by noting that Australian regulators were setting pre tax nominal WACC's in the range of 8-10% in the period 1998-2000¹⁹. Observed results from companies listed on the ASX (via the ASX 200 accumulation index) operating in the competitive environment at the same time as the regulatory decision were made, indicate that they did not, and have not since earned such rate of return. This point is elaborated upon later in this Report.

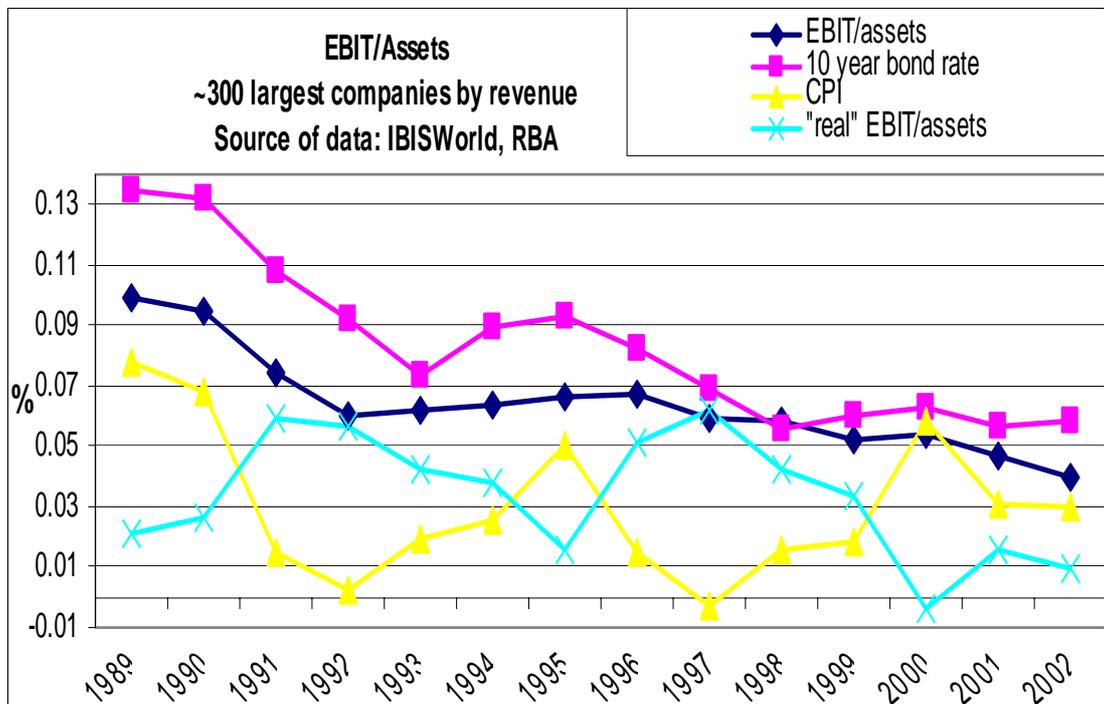
This observation has led us to systematically analyse the financial results over the past ten years of the largest (by revenue) businesses operating in Australia.

¹⁸ Source: RBA for the period from 1950.

¹⁹ See section 1, analysis by Pareto Associates

IBISWorld²⁰ was requested to collect and summarise the data submitted by public and private corporations as part of their annual reporting requirements²¹.

This data has been analysed and the following results identified.



This analysis 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%)

As noted earlier, the two CAPM elements most contentious are the equity beta and the market risk premium.

Regulated businesses have often stated that the WACC they should receive should be a “forward looking” assessment of returns, as the WACC is used to set the future revenue for the business. This view is unexceptional and is accepted by both regulators and consumers, with the result that many of the CAPM formula elements used in setting the WACC are generally agreed.

²⁰ Details about IBISWorld are included in appendix 3, and the structure of the information provided by them is detailed in appendix 2. The summarised results for all companies included in the sample is provided in appendix 7, and the summary of data appropriate to businesses with regulated assets is included in appendix 8.

²¹ Details of the data provided by IBISWorld, assumptions made and data manipulation is included in appendix 2.

For example, the setting of the nominal risk free rate uses the returns expected for Australian Government bonds for the period (or longer) of the regulatory revenue setting. This provides the most appropriate basis for an expectation of what is likely to happen with interest rates for the regulatory period. Similarly indexed bonds compared to nominal bonds provide a forecast of the likely movements in inflation.

There are a number of inputs to the CAPM formula. A typical listing and WACC derivation is taken from the ACCC regulatory decision for Murraylink²².

Parameters

Gearing ratio (D/V) %	60%
Asset beta β_a	0.4
Debt beta	0
Equity beta	1.00
Debt margin (over Rf) %	0.86%
Market risk premium (Rm-Rf) %	6.00%
Nominal risk free interest rate (Rf) %	5.46%
Expected inflation rate (F) %	2.07%
Cost of debt $R_d = R_f + \text{debt margin}$ %	6.32%
Value of imputation credit	50%

From these inputs the ACCC calculated the following WACC levels:-

Nominal post tax return on equity	11.44%
Vanilla WACC	8.37%

There is general acceptance by consumers and regulated businesses of the way forecast inflation is estimated, debt beta and the value of imputation credits.

The aspects of most concern for the regulated businesses appear to be the duration over which the nominal risk free rate is set (5 versus 10 year Australian Government bonds) and the debt margin. There is an acceptance by them of the current levels of market risk premium and asset beta, although the regulated businesses indicate that an increase in the current levels would not be inappropriate.

Consumers, on the other hand, have benchmarked the WACC levels set by regulators against overseas regulated returns and local regulators have consistently set higher WACC's. Further, as pointed out earlier, attention has focussed on the cause of the higher WACC levels as being due to the level of the market risk premium and equity beta used by Australian regulators.

²² Decision by ACCC, Murraylink Transmission Company, Application for Conversion and Maximum Allowed Revenue, 1 October 2003, page xix

3.1 The observed discontinuity between regulated returns and the market

The market risk premium is an observed outcome of the returns achieved by Australian businesses over a long period of time. It is the premium between the return earned by businesses *on its equity element of the investment* and the “risk free return” that could be earned by investing in government bonds.

To use a ‘historical’ view of market risk premium runs counter to the notion of using forward looking parameters where possible. However, the market risk premium movements over the past 100 years or more are seen to follow a pattern²³ with the market risk premium falling over time. This is shown in the following table.

TABLE 5.3: HISTORICAL AUSTRALIAN MARKET RISK PREMIUM – 1882 to 2001

Time period	Market Risk Premium	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: ESC Gas Final October 2002

The change of the market risk premium in the different time periods shows that there has been a secular decline. Because of the apparent volatility of the figure, regulators have tended to discount the trend showing lower market risk premiums over time, but have neglected to identify the reasons why this trend of a falling MRP has been occurring. What is more disconcerting is that regulators are using historic data tracking back over centuries and not adopting more current trends. Regulators aver they are seeking forward looking inputs to the CAPM formula, but yet are neglecting to use the most current data (which provides a better forecast of the future).

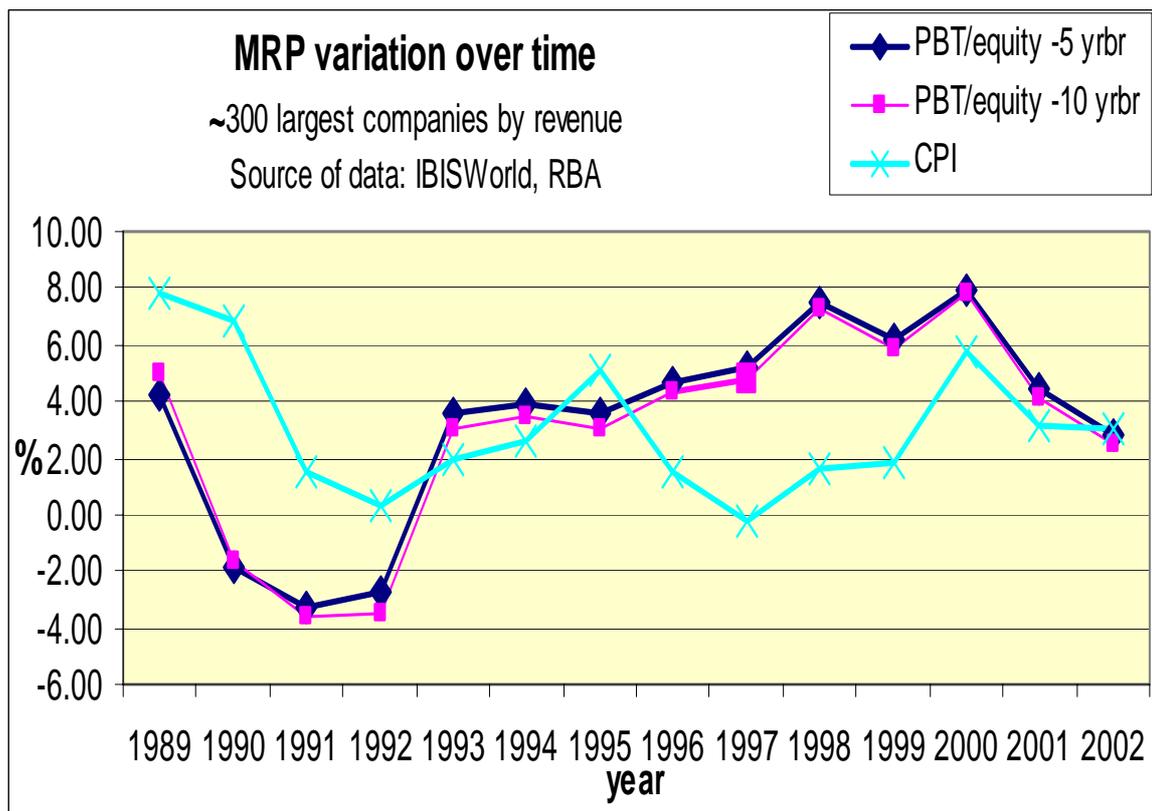
The most recent period (1970-2001) has been influenced by a number of major structural changes to the Australian economy including:-

²³ ESCoSA Electricity distribution price review: return on assets, discussion paper August 2003

- floating of the Australian dollar;
- banking and financial systems deregulation;
- integrating Australian industry into the world market by the virtual elimination of all tariff protection; and
- a major overhaul of the tax structure.

Thus to use market data based on a very long period of over a hundred years will have minimised the impact of these recent market changes and distorted the outlook for certain CAPM variables. It is obviously more appropriate to use more recent data on business market performance to provide a more realistic indication of future trends.

We have sought in this Report, to assess the current MRP trends, by analysing the financial performance of Australia's (private and public) largest 300+ companies ranked by revenue²⁴. This assessment shows that the market risk premium (PBT/shareholders funds less the "risk free return" as set by government bonds) over the past decade has moved over the range of -4% and +8%.



²⁴ See appendix 2

The average of the market risk premium over this period is 3.30% (as measured against 5 year bonds) and 3.03 (measured against 10 year bonds). Inflation over the same period averaged 3%.

The data analysed is in close agreement with the data developed by Prof R Officer²⁵ for the period 1970-2001, which is included in table 5.3²⁶ in the ESCoSA discussion paper on return on assets.

3.2 Equity Beta (β_e)

Regulated businesses are generally seen as conservative investments, and are marketed accordingly. This is illustrated by the following press statement:-

“TXU a conservative investment vehicle

The expected \$1.2 billion float of TXU Australia would create a conservative investment vehicle that would sit somewhere between Origin Energy and Australian Gas Light on the risk spectrum

The company is not a growth stock in the style of Origin, with its exposure to upstream gas production business and its heavy focus on energy retailing. But TXU has less exposure to gas and electricity networks than AGL. It also has a relatively large exposure to generation through its Torrens Island plant, South Australia’s generator, and contracts with Ecogen.”²⁷

Companies owing monopoly electricity and gas assets are generally seen as being conservative investments, much more so than the average of all companies listed on the ASX and this is reflected by ratings agencies. As can be seen from the above extract, AGL is viewed as a very conservative investment, with its relatively larger exposure to gas and electricity (regulated) networks. Regulated network companies are regarded as conservative because there is the expectation that the returns they earn will reflect the conservative (and effectively guaranteed) nature of their income stream and earnings. To assume that they have an investment profile equal to the average of all businesses operating in Australia does not reflect the view of the investment community.

A conservative business is reflected in the WACC formula by having a low (less than unity) equity beta.

²⁵ Sourced by ESCoV from 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*, 2nd edition, University of Queensland Press, 1992.

²⁶ ESCoSA Electricity distribution price review: return on assets, discussion paper August 2003

²⁷ Source – The Age, 19 September 2003

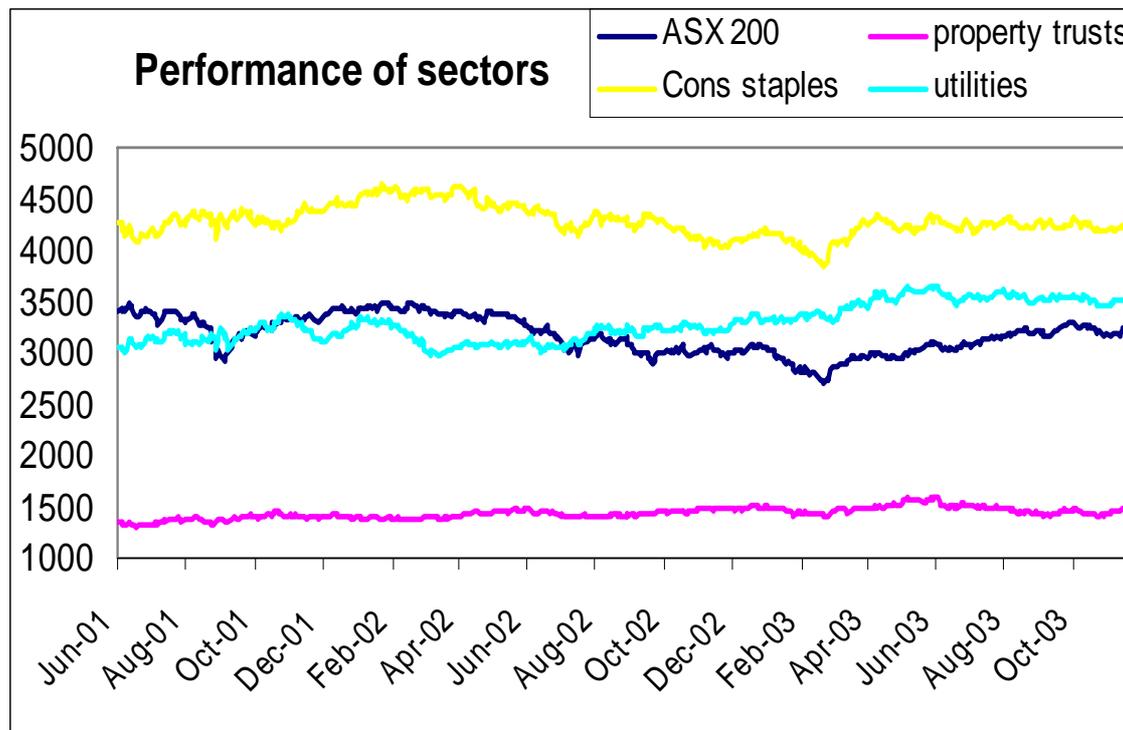
Equity beta provides the measure by which the returns of a specific company or industry will vary above or below the average equity return of all industries. A low equity beta implies that there is a low risk of the entity not achieving its returns and a high equity beta implies that there is a high risk of achieving the expected return associated with the company or industry. In practical terms, equity beta is an adjustment to the CAPM which recognises the risk profile associated with a specific enterprise or industry – it is a measure of the certainty of return.

Exclusion of the equity beta from the WACC formula would imply that all companies and industries have an equal risk of achieving the expected profit. The market as a whole has an equity beta of unity. Thus, to assign an equity beta of unity to a specific enterprise is to assume that it has the same risk as all enterprises in the market taken as a whole.

The Australian Graduate School of Management has calculated a range of equity betas for each of the ASX indices. These are shown in appendix 5. Regulators have used this listing as the basis for determining equity betas, assuming that the “Infrastructure and utilities” index closest approximated the risk profile of regulated gas and electricity companies. This decision may have been made without specifically examining which companies were included in the index and the risk profile of the activities of each of these companies.

Since this list was published the ASX has modified the construction of its industry indices incorporating the Standard and Poors (S&P) Global Industry Classification Standard (GICS). The new system has operated only since 31 March, 2000 for the main indices but from 1 July 2001 for the sector indices.

The companies included in the Utilities index are detailed in appendix 6, together with the daily movement of the index since its inception. The data in the following table is sourced from CommSec.



Analysis of the data reveals that the index is dominated by gas retail and transport companies, with AGL (retailer and distribution) comprising nearly 60% of the index, other gas transport companies comprising 30% of the index, and power generation and technology stocks comprise the remaining 10% of the index. The retailing and power generation functions of AGL further detracts from the applicability of the AGSM calculations²⁸ of equity beta being used as a guide to setting equity betas for the regulated element of the assets owned by these and other companies. This highlights the importance of the calculations of equity betas that have been carried out by the Allen Consulting Group²⁹ which were calculated for companies only with regulated assets.

A comparison of the relative performance of the Utilities index and the “average” ASX 200 index shows that the Utilities index has outperformed the average significantly, whilst at the same time demonstrating a greater stability in stock prices. More telling is that the Utilities index has outperformed the Property Trust and Consumer Staples indices, but shows a similar stability in pricing when compared to both indices. It must be remembered that the Property and Consumer

²⁸ See appendix 5

²⁹ Empirical Evidence on Proxy Beta Values for Regulated Gas Transmission Activities, Report for the Australian Competition and Consumer Commission, July 2002 by Allen Consulting Group

Staples sector groups have low equity betas³⁰, implying that the new Utilities sector group should have a similar rating to both of these sector groups³¹.

The Utilities index is heavily weighted to gas stocks, although the heavy weighting provided by AGL does provide some exposure to electricity retailing and electricity distribution assets. Notwithstanding this bias to gas stocks, the index and the comparison to the ASX 200 supports the analysis of Allen Consulting Group demonstrating that the equity beta for gas utilities should be considerably lower than the average of all stocks. The stability and outperformance of the Utilities index compared to the benchmark ASX 200 supports the contention that a value of unity for regulated businesses is too high.

As gas and electricity regulation follow largely the same pattern (using the building block approach), there is no reason not to use the equity betas from the gas transport industry to provide guidance for valuing equity betas for the electricity transport industry. There is an argument that as the Gas Code requires the business to accept some risk associated with volume (the Gas Code requires the regulator to set a tariff for transport thereby exposing the gas business to volume risk) which the electricity transport businesses does not (the Electricity Code requires the regulator to set a revenue cap, and allows the business to set tariffs to recover the approved revenue over the actual volume of energy transported).

This treatment thereby provides electricity transport businesses with greater certainty of revenue, implying a lower equity beta than would apply for gas transport businesses.

Further support for the need to reduce equity betas for regulated businesses comes from analysis of the data from IBISWorld which includes for the results of some regulated electricity businesses³².

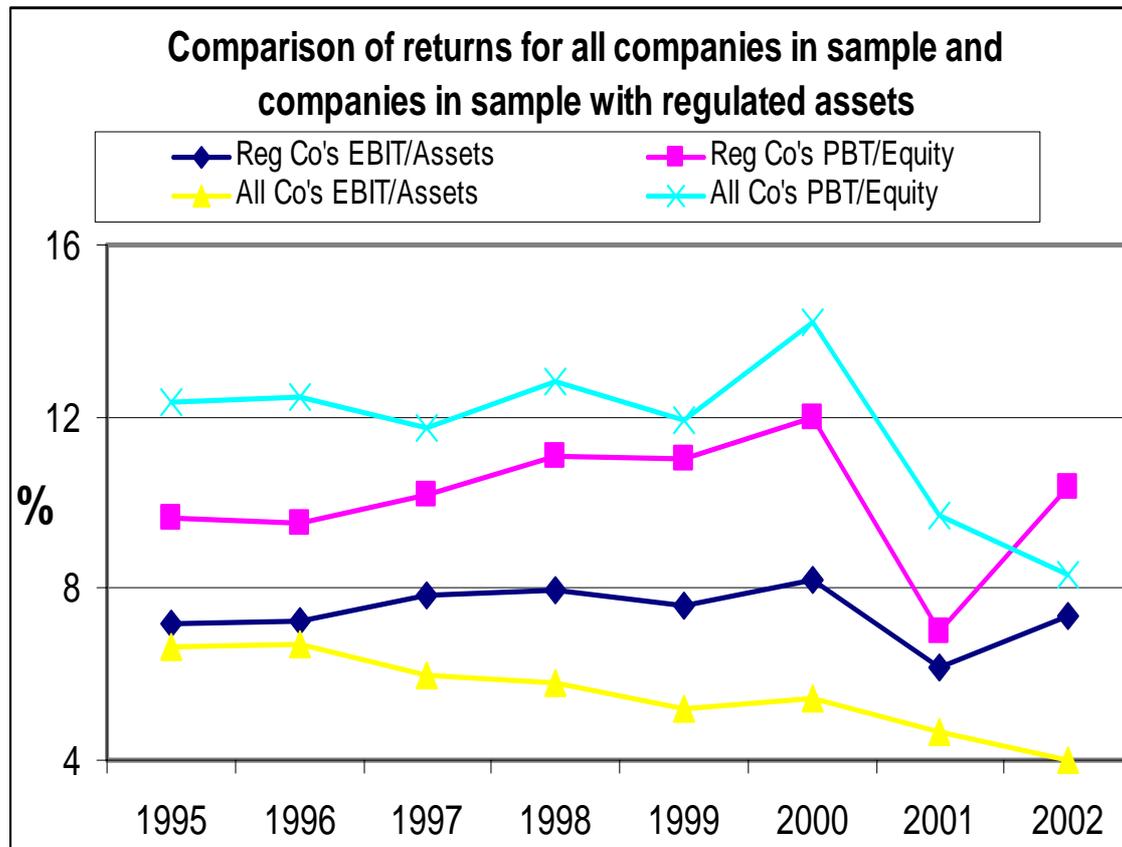
The data provided from IBISWorld is necessarily not as extensive for regulated electricity transport businesses³³ as for other businesses, as the disaggregation of the electricity businesses did not commence until the mid nineties. Accordingly, the research only includes data after 1995, and only covers between 6 and 14 companies in any one year of data. Further, it must be noted that the businesses are all electricity retailers as well as having regulated assets, which further distorts the returns, impacting the overall profitability of the integrated retailer/distribution business.

³⁰ Refer to the AGSM study of equity betas in appendix 5. The Consumer staples index incorporates the old Alcohol and tobacco and Food and household indices

³¹ Because of the close comparison between the performance of the Property and the Utilities sectors a closer examination of the points of likeness between property and regulated utilities is carried out later in this report.

³² This data is summarised in appendix 8

³³ Electricity transport companies in the sample which have regulated assets are AGL, Aurora Energy, Energex, EnergyAustralia, Enertrade, Ergon Energy, ETSA Utilities, Integral Energy, Origin Energy, PowerCor, TXU Australia and Western Power.



Notwithstanding the paucity and limitations of the data, there are a number of observations that can be made from the analysis.

1. The return gained on assets employed (EBIT/Assets) over the period by the businesses with regulated income (7.45%) exceeds that earned by all businesses in the sample (5.55%) by an average of 190 basis points.
2. The return gained on equity (PBT/shareholders funds) over the period by businesses with regulated income (10.1%) is lower than that earned by all businesses in the sample (11.7%), by an average of 160 basis points.
3. Average gearing (total assets less shareholder funds over total assets) of the businesses with regulated income averaged 55% whereas gearing of all companies averaged 77%.

Maintaining the return on assets at the same level but modifying the gearing to replicate that applying to "all companies" (ie 77%), the return on shareholder funds for businesses with regulated assets increases to 14.7%, exceeding the return on shareholder funds for "all companies" by 3%. As the equity beta for "all companies" must be unity (by definition) then the apparent equity beta granted for businesses with regulated assets is 14.7% divided by 11.7% or 1.26. Thus despite being awarded an equity beta of unity, these businesses when assessed on a

comparable basis to the average gearing of all companies are returning an equity beta well in excess of the awarded figure. This leads to the assumption that if regulated businesses are to be permitted to earn an equity beta of unity, then the regulator should use an equity beta in the CAPM formula of no more than 0.79.

However analysis of the financial results from the Annual Report of Integral Energy 2001/02 adds a further complexity to the comparison. The published results for Integral Energy give RoA and RoE values in the same range as for regulated companies in the sample of companies, of ~7% and ~10% respectively when using their regulated asset value. However when the asset revaluation reserve is discounted from the asset valuation (asset revaluation reserve is the difference between the DORC valuation and the DAC valuation for the company assets) the results give values for RoA and RoE of ~10% and ~25% respectively, well in excess of the returns earned by companies using the DAC method for asset valuation. This clearly demonstrates that the method for asset valuation needs to be considered when comparing the results of businesses with regulated returns and for using equity betas derived from assessing performance based on a DAC valuation for assets³⁴.

As most of the regulated companies follow a similar approach of using DORC for valuing assets, the issue of asset valuation methodology and its impacts is further developed in the ensuing section.

Overall, with regulated businesses being awarded equity betas of unity by regulators, this is in excess of those earned by comparable businesses operating in the competitive sector. The analysis of the data of competitive businesses bears out the analysis carried out by the Allen Consulting Group (referred to above in section 2 point 5 of this Report) which points out that the equity betas for regulated gas businesses should be lower than regulators have been providing, and in particular, confirms that equity beta for regulated energy transport companies should be 0.3 to 0.4 rather than at the level of unity used by regulators.

3.3 The implications of a depreciated optimised replacement cost (DORC) asset valuation

Annual reporting by businesses of their financial performance follows strict accounting rules. In particular, assets are normally valued at historic costs and if an asset is revalued then the profit or loss resulting from the revaluation is included in the profit and loss statement, increasing or decreasing the declared corporate profitability.

The implications of these standard accounting practices has a specific impact on the now almost universal approach taken by Australian regulators to use the

³⁴ This further research is outside the scope of this Report but clearly needs to be carried out due to the large impact it has when benchmark comparisons are made between awarded WACC's and RoA's achieved by competitive businesses.

depreciated optimized replacement cost (DORC) valuation method for establishing asset values against which the WACC is to be applied to establish the return on assets element of the “building block” approach to establish the allowed revenue. The Electricity Code is relatively silent on the required method for valuing assets, stating a preference for use of the Deprival Valuation method and the value placed on the assets by the jurisdiction. On the other hand, the Gas Code³⁵ specifically includes a listing of the various variables that are permitted to be used to set the value of the assets of regulated businesses and of the issues which may affect the final decision of the regulator. Estimation of the Deprival Value of assets is considered extraordinarily difficult and open to challenge, and as a result Australian regulators have elected to use the DORC valuation method for valuing electricity assets.

However, the stated approach taken by regulators to the regulation of monopoly businesses has been to replicate outcomes which would occur if the regulated business operated in a competitive environment. Thus, there must be consistency between the derivation of the various CAPM elements and the use of them in the CAPM formula.

Return on equity (RoE) is the profit earned after payment of interest and is related to the value of shareholder funds. The value of shareholder funds is derived from the valuation of all assets less the liabilities of the corporation. In this very direct way RoE is a ratio of profitability derived from the valuation of assets used by the corporation. Almost universally, assets are valued on an historic basis for very sound reasons, particularly because there is an auditable derivation process for the value. One of the key drawbacks in using other asset valuation methods for audit purposes, is the very subjective nature of the derivation of the values. In particular, the regulators’ commonly used DORC valuation method for assets contains a high degree of subjectivity.

This subjectivity is clearly demonstrated by the recent debate over setting the asset value for Transend (Tasmania’s electricity transmission network). In this example, the declared depreciated actual cost of the assets as at June 2001 (as detailed in the Transend annual reports) was \$395.1m³⁶. Two specialist engineering companies valued the Transend assets on a DORC basis and arrived at two different amounts (SKM at \$563.2m and Meritec at \$521.6m³⁷). There is a clear auditable paper trail as to how the depreciated actual asset (DAC) value was established but experts have differed significantly as to what the DORC value might be.

³⁵ See appendix 4 for the relevant clauses from the Gas Code

³⁶ This amount excludes an asset revaluation reserve of \$37.6m as this revaluation amount was not taken as profit and therefore is an internal adjustment only.

³⁷ Both of these amounts were provided by Transend in 2003, as part of documentation supporting their application to the ACCC for a revenue cap. SKM and Meritec are well known engineering consultants.

This disparity and lack of audit trail exemplifies why businesses use historic cost valuation (DAC) for their asset valuation. Because the DAC values are auditable, they are used to develop the RoA and RoE ratios for businesses. This consistency is essential, because if less controlled methods for asset valuation were used then the use of RoA and RoE as comparators between similar businesses loses any significance. The importance of these comparators (RoA and RoE) cannot be overstated as they are essential elements of the suite of financial indicators used to base investment decisions³⁸.

If the RoA and RoE ratios are based on the historic cost of assets, then it follows that the derived market risk premium (the difference between RoE and the “risk free” return) is also derived from data based on historic costs. The clear implication of this is that historic market risk premium calculations are based on an asset valuation methodology which is not the same as the methodology used by regulators. This shows there is a clear uncoupling between the derivation of one figure (the market risk premium) and its subsequent use by regulators.

To demonstrate the importance of this point, by using the Transend asset values taken from the annual report (DAC value) and that assessed by the Tasmanian Government consultants Meritec (DORC value) as an example, the following anomaly arises.

- The regulator proposes a risk free rate of 6%.
- The regulator adds a MRP of 6% (derived from a depreciated actual cost of assets) to a risk free rate of 6% and applies the sum of the two to a depreciated actual cost valuation of \$395.6m, which provides a revenue of \$47.5m using directly related and derived indicators. There is a clear auditable trail through which all relationships can be verified. The outcome is consistent with the derivation of MRP.
- If the regulator adds a MRP of 6% (derived from a depreciated actual cost of assets) to a risk free rate of 6% and applies the sum of the two to a DORC valuation of \$521.6m, this provides a revenue stream of \$65.6m, an increase in revenue of 32%. However, there is now no direct and auditable link between the derivation of the MRP and its subsequent use. To provide such an auditable trail would require the MRP to be discounted so that it returns the same outcome that would apply if the auditable derivators were used.

It is quite clear that the asset valuation methodology must be consistent with the source of the inputs to the CAPM formula.

³⁸ It should be remembered in this context that there have been a number of attempts over the years to establish better methods than these indicators for assessing businesses financial performance but ultimately these new concepts have moved out of favour. A classic example of this was the ill fated flirtation with Current Cost Accounting during the 1980's

3.4 The impact of gearing

Gearing is the relationship between the amounts of *interest bearing debt* a corporation has in relation to its total assets. As gearing increases, so does the concern lenders have as to the ability of the corporation to manage the debt, to be able to generate sufficient earnings to service the interest and any capital repayments and to provide sufficient security so that if the corporation defaults on its agreement, for the lender to be able to recover the funds borrowed.

During the eighties, there was a major deregulatory process introduced into the banking industry. This resulted in many of the building societies taking out banking licences and international banks entering the domestic market. In this new competitive environment, the indigenous banks commenced an aggressive marketing campaign to retain market share. The results of this competition have been to increase the levels of gearing permitted *with no penalty from increased interest rates*³⁹.

The CAPM formula assumes that all of the funds used by an enterprise are either interest bearing debt or equity. The study of the top 300+ companies revealed an interesting aspect regarding this simplistic view. That is, that the assets held by a corporation are sourced from at least three key elements – viz. from equity, interest bearing debt and non-interest bearing debt. Cash retentions provide a source of non-interest bearing debt for the corporation and include provisions, depreciation, tax deferrals, reserves, the difference between amounts payable and receivable, and these liabilities are not included in the gearing assessed by lenders. There was a differential between the levels of interest bearing debt and equity which were observed in the analysis of the samples from IBISWorld and this differential is explained by the corporate usage of retained cash which is, in effect, non-interest bearing debt and this element should be included in the CAPM formula.

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”⁴⁰). Since debt is consistently a lower cost source of funding than raising equity, companies often seek to operate with as high a level of debt as reasonably practical.

³⁹ This can be readily seen by the banking approach to housing mortgages. Prior to banking deregulation, bank lending for domestic housing seldom exceeded 60% of the value of the property. The same banks now lend up to 80% of the property value for the same risk premium.

⁴⁰ Interest cover is a relation between the debt repayments and a discounted assessment of the expected profit before interest and tax (PBIT).

Regulators assume that the 60% gearing level is one which supports the highest rating level for debt (ie. the 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 South Australia’s electricity distribution business, ETSA Utilities, operates with 100% debt).

This point is further reinforced by the demonstrated approach by governments of securing 100% debt funding for state owned electricity businesses, effectively underwritten by the people of the state. The cost of this high level of debt shows little or no increase in debt premium to that of the notional regulated business which operates at the nominal 60% gearing. It is the certainty of being repaid that sets the debt premium, and regulated electricity businesses have a high certainty of income which effectively guarantees the ability of the borrower to service the loans taken.

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. Until regulators assess the ability of a regulated business to access debt at a higher level than the nominal 60% gearing without suffering a debt premium, the assumption that gearing has little or no impact on the development of the WACC appears to be flawed and favour the regulated businesses.

Thus, there appears to be two issues that regulators have not sufficiently considered about the gearing levels used in the CAPM formula:-

1. The assumption that the funding is either interest bearing debt or equity, excludes the fact that non-interest bearing debt is a significant element of the business.
2. The assumption that 60% gearing is the maximum that debt levels are possible without increasing debt premiums.

Taking these two issues into account, the WACC calculation could and should be modified to allow for the proportions of interest bearing debt and equity to sum to an amount less than 100%, and to test the assumption that 60% gearing is the maximum that could be achieved by a regulated monopoly business without incurring penalties.

From the analysis of the results of Australia’s largest companies, their level of equity is not 40% of assets, but approximates less than 25% of assets.

Regulators have assumed that an appropriate (vanilla) funding structure on which to develop a WACC for regulated businesses should be based on assuming 60% of the asset value being sourced from interest bearing debt, and the balance being sourced from equity. Regulators have assumed that there is no funding of assets from any other source, such as non-interest bearing debt.

However, after examination of the competitive market financial structures in the sample – which shows a significant element of the asset base being funded from sources of non interest bearing debt – the CAPM formula for regulated businesses should be modified to incorporate elements within the following ranges which reflect the actual experience of businesses in the competitive environment.

Interest bearing funding (debt)	60-70%
Non-interest bearing funding (internal)	15-30%
Shareholder funding (equity)	20-25%

3.5 Recapping the analyses

The analysis of the financial returns of the 300 largest companies operating in Australia provides an interesting insight into the errors that have crept into the use of the CAPM formula by regulators of energy company assets. In particular, the analyses show that:-

1. **Overall returns.** Nominal and “real” returns earned by companies operating in a competitive environment when related to the total assets employed are lower than the WACC’s awarded by regulators by as much as 200 basis points.
2. **Use of historical MRP.** The historical market risk premium has declined over recent times, due to fundamental changes occurring in the competitive environment now operating in Australia. As the CAPM is intended to be a forward looking method for setting regulated returns, use of average figures using data extending over 100 years ago, does not adequately reflect the current and expected future conditions. Accordingly, more recent data should be used as a more appropriate basis for setting forward looking rates of return.
3. **Current MRP levels.** Our analysis shows that over recent years the MRP has averaged 3.0-3.30. This is consistent with the recent work of Mercer Consulting.
4. **Equity beta.** The equity betas used by regulators assume that regulated businesses are “average”. Regulators are not accepting that by granting a regulated return the market accepts that the regulated businesses exhibit a “conservative” rating, recognising that while providing a lower return, there is enhanced certainty or return. Thus, the market assesses regulated businesses as exhibiting a

lower equity beta than unity. This Report favours a range of 0.5-0.7 as being more reasonable.

5. **Applying MRP to DORC asset values.** Market risk premium is assessed from rates of return generated using historical depreciated actual cost (DAC) values for assets. To apply an MRP generated on this basis to an asset value using a depreciated optimised replacement cost (DORC) valuation basis is inconsistent and results in a much higher value for return on assets than should apply.
6. **Impact of gearing.** Regulators have assumed that gearing comprises 60% debt and 40% equity. In fact, our analysis highlights that implied gearing is much higher (as high as 77%) but that this comprises a mix of interest bearing debt and non-interest bearing debt, with an equity element of 20-25% of total assets. Using a higher level of equity and not providing for non interest bearing debt in the CAPM formula (incorrectly) inflates the WACC calculation.

4. Further comparisons: the ASX accumulation index and the property market

Further comparisons can be made to assess the robustness of the conclusions reached earlier. This can be carried out by comparing the results of the sample of companies with the movement of the ASX index and the ASX accumulation index and by comparing the results of the sample with the property market which exhibits many similar features with energy transport businesses.

4.1 The ASX accumulation index

Public listing of companies

The public listing of corporations is the most common way for corporations to gain capital to maintain corporate operations or to raise funds for expansion. Initial purchase of shares in a company which is listing is classed as an investment and constitutes the equity invested in the company by the investor. Once publicly listed, such shares in companies can be readily traded between investors. Contrary to the issue of debt by a company where the lender has some security over assets held by the company, the shareholder in a company has no security that the purchase of the shares will either return a dividend or even retain their value. The 1929 stock crash classically demonstrated this feature of share ownership.

The Australian Securities Exchange (ASX) manages the trading of company shares of publicly listed companies and publishes daily the price at which investors are prepared to buy and sell the shares in any listed stock. It also requires those companies listed to follow certain information disclosure rules. Failure to comply with these rules results in the suspension or de-listing of the stock, to the disadvantage of the shareholder. The information provided by companies to the ASX as to their financial performance is used by investors to assist them in making investment decisions. This data is expected to provide the most accurate financial information on corporate performance made available by corporations.

To provide a service to investors the ASX also calculates and publishes a range of indices which provide an insight into the share performance of each of a range of class of shares to allow investors to identify how the shares of a particular company is performing against others of the same class. In addition to these sectoral classifications the ASX also publishes a series of indices indicating the share performance of groups of the larger companies. The best known is the "All ordinaries" index which measures the share performance of the largest ~270 companies (by market capitalisation) although more recently the use of the ASX 200 is becoming the more used benchmark. The ASX 200 indicates the share performance of the 200 largest companies on the stock exchange as measured by

market capitalisation. The composition of the index varies over time as the growth of companies within and just outside the index varies.

The ASX 200 (and the other similar groupings such as the ASX 20, 50, 100 and 300, and all ordinaries) is a measure of *the value of shares being traded at any one time*.

The ASX also calculates and publishes the yield of each company's share. The yield is defined as the dividend paid by the company for each share held, divided by the price for purchasing a share in the company.

Thus, the ASX provides two core measures of the return on an investment in a listed company – the change in the value of a share in each company and the return that the company dividend provides related to the purchase price of a share.

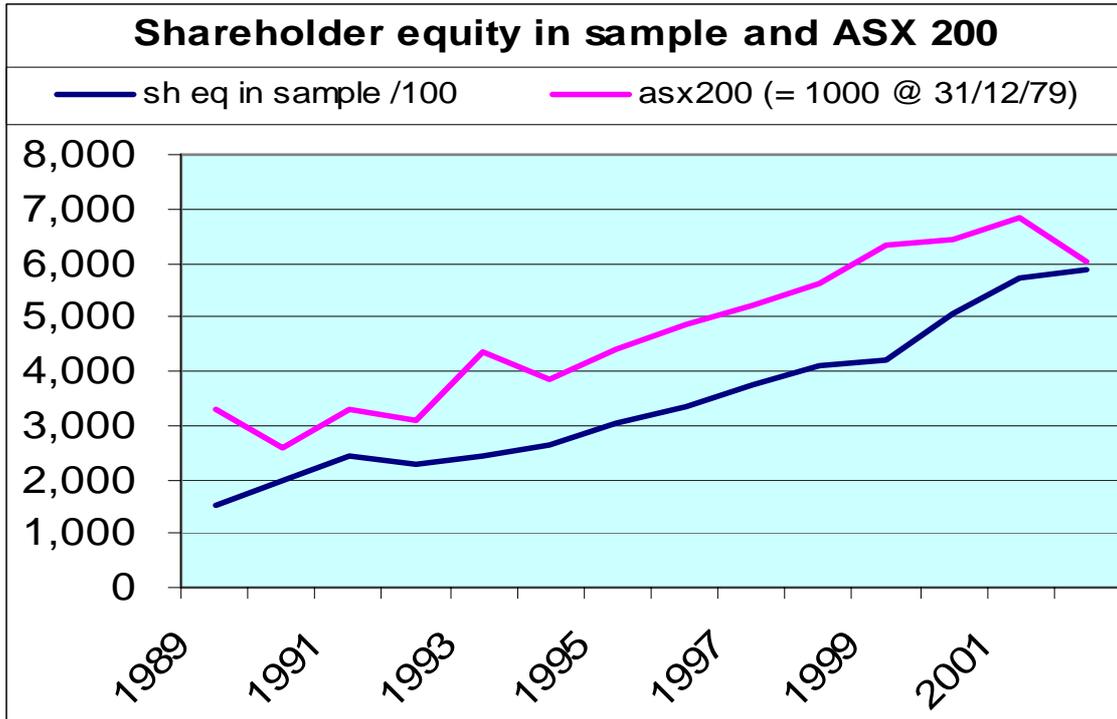
If the dividend is reinvested in the company each year, then the performance measure calculated by the ASX is the *accumulation index*. The accumulation index measures not only the change in the value of the shares of companies comprising the index, but includes the benefit of *the dividends* paid by each company to shareholders. Thus, the accumulation index calculates both the capital gain of the share value of the company plus the dividends paid as a result of the investment in the company.

In this way the accumulation index provides a calculation of the total return an investor in a listed company will make from the investment, *providing that the dividend is reinvested into the company*. If the dividend is retained by the investor, then the performance measure becomes the ASX share index. Appendix 9 includes a statement of the typical investment guidelines for an investment manager. Article III shows that the benchmark performance is required to be related to the ASX 300 accumulation index.

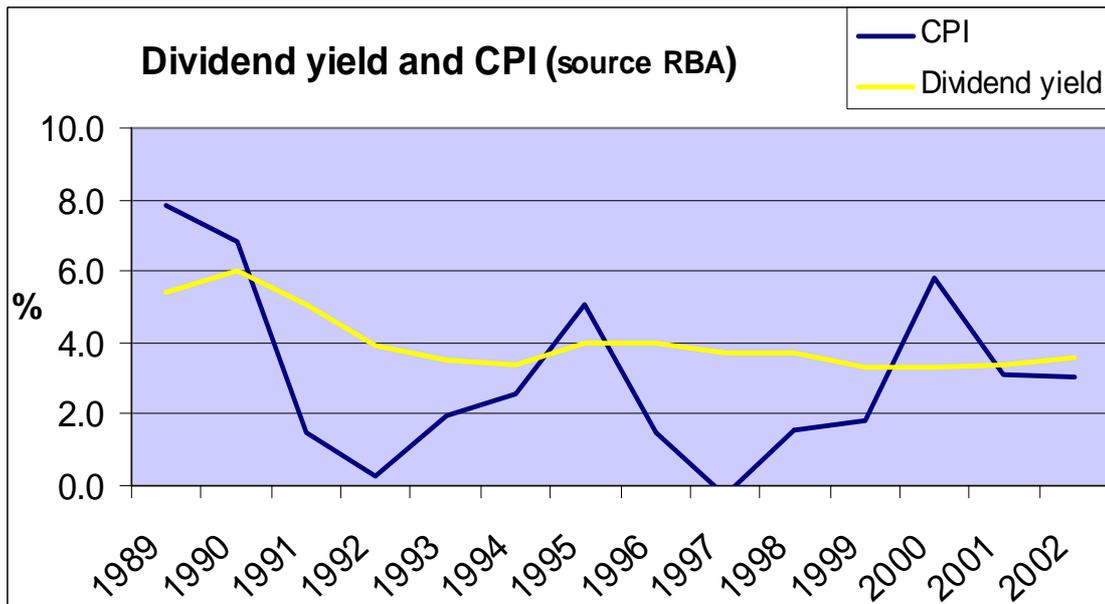
Analysis of the returns from listed companies

It is important to verify that our analysis of the sample of companies undertaken from the data from IBISWORLD is consistent with the market generally. The equity returns from the sample were plotted against the ASX 200 index, and a close correlation between these is established, confirming that the values in the sample are consistent with the market as a whole. This consistency provides confidence that the sample and the market provide similar outcomes, and that shareholder equity in the sample companies can be correlated to the ASX share index.

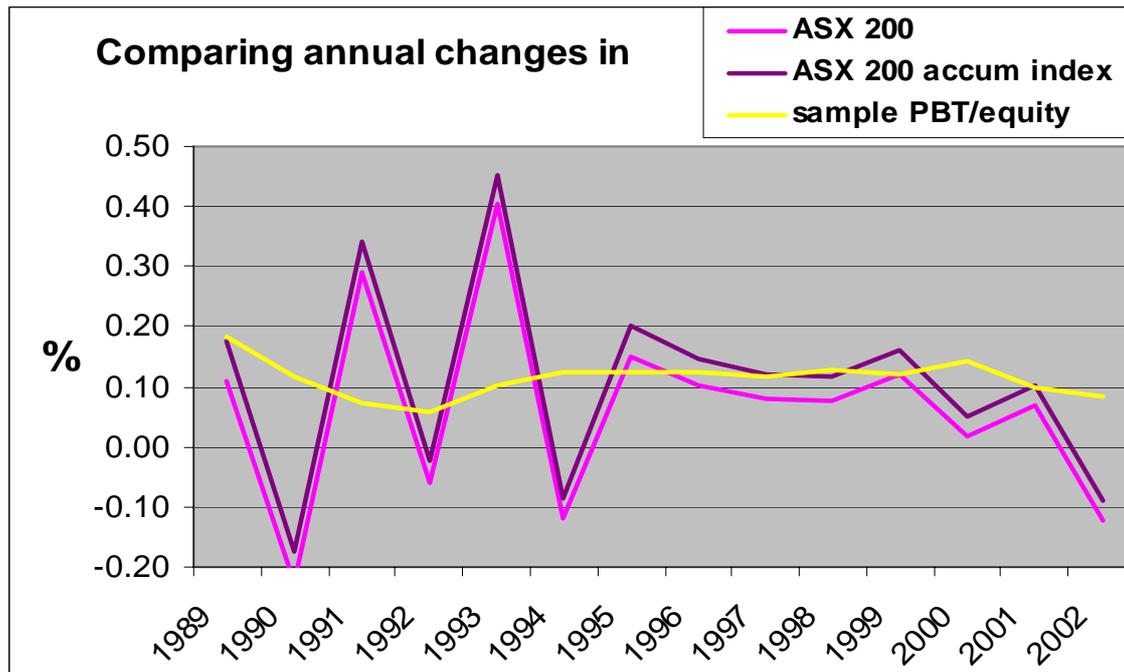
Assuming that the share index (using the ASX 200 as the basis) can be used as a surrogate for shareholder equity, then the dividend yield can be compared to the return on shareholder equity.



Using the same time period as the sample (ie since 1989) dividend yields have varied between 3.3% and 6.0%, averaging 4.0%. Thus, the return being made by investors in shares over the period, without the capital growth in the shares, has only marginally exceeded average inflation of 3%. In real terms the benefit investors have earned from investing in shares, has been predominantly from the growth in the share index.

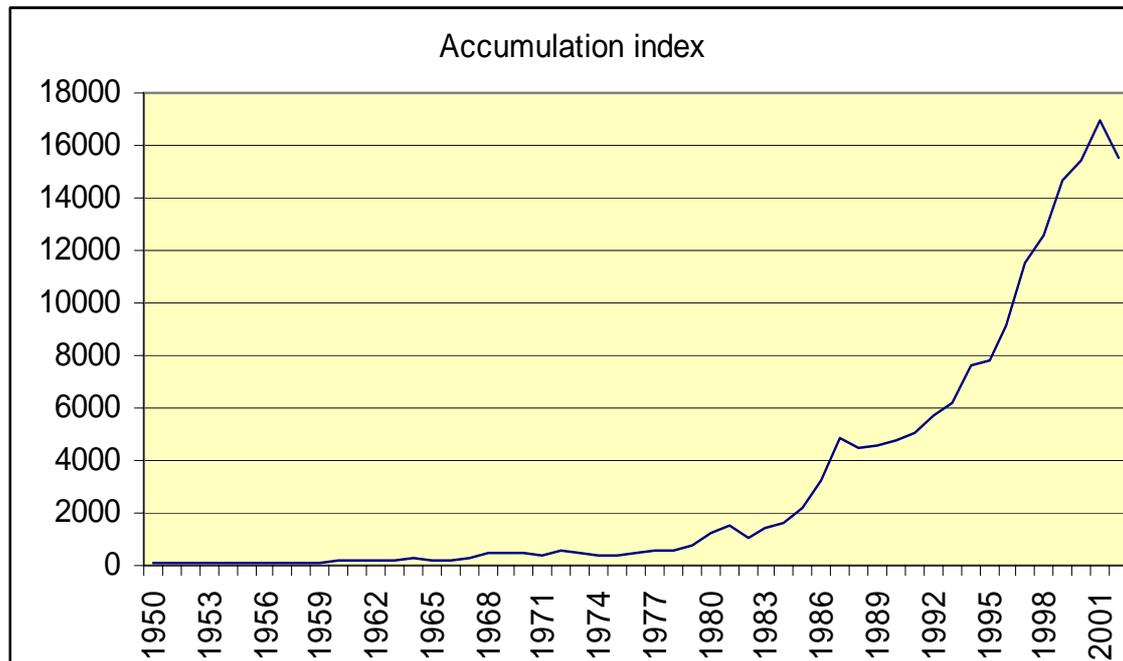


The ASX 200 has shown an average annual growth over the same period of the sample companies analysed of 6.4%, some 200 basis points below the sample “real” PBT/equity of 8.4%. The annual change in the nominal accumulation index average over the period of 10.7% equates closely to the nominal PBT/equity for the sample of 11.2%. Thus, there can be a conclusion drawn that the returns of the sample typically replicate the observations of the market in its entirety.



As the accumulation index is an indication of the total return earned by an investor over the long term, it is appropriate to assess the movements of this index over a long period⁴¹.

⁴¹ Source: RBA



This graph shows that the accumulation index generally rises over time, with downward corrections being observed in 1982, 1987 and 2003. The compounding growth of the index since 1950 shows that investment in the index would return a nominal annual return of 11.2%.

The calculation of return of 11.2% for the accumulation index over the long term compares favourably with the results from the sample of companies which show that the nominal pre tax return on equity earned by the companies was 11.4%.

Investment approaches

Much of the investment made by individuals and superannuation funds is subcontracted to specialist equity investment advisers. Almost universally such specialist advisers will offer to exceed the annual returns calculated from the benchmark ASX accumulation index by at least 200 basis points, and for carrying out this service, will charge an annual fee of 0.75% of the value of the funds invested. Thus by using specialist services, an investor can hope to exceed the benchmark performance by over 100 basis points. Actual results achieved by such investment specialists, however, do not support the expectation of out performance of the index.

A typical proposal for investment guidelines is attached as appendix 9.

This approach highlights that it is the ASX accumulation index that is used as the benchmark performance measure for investment returns in equities. It is therefore appropriate to use this same index as an industry wide performance measure of

return for equity investment and to accept that the results that are derived from using this benchmark performance can be extrapolated into the overall assessments of expectation of reasonable equity returns.

Recapping the analysis

1. There is close correlation between the equity returns of companies in the sample and the ASX200 accumulation index, implying that the index can be used as a proxy for the return on equity.
2. The analysis undertaken of the sample of companies replicates the performance of the publicly listed companies over the same period, providing confidence that the analysis is sustainable, and that the conclusions can be extrapolated into the wider equity market.
3. Dividend yields from listed companies over the sample period have barely matched inflation.
4. The accumulation index is widely used as a measure of return from the ownership of equity in companies and therefore can be used as a good indicator of the average returns possible from long term investment in a company.
5. Long term returns from investment in the accumulation index show that a nominal return on equity in Australian listed companies of 11.2% has been achieved since 1950, confirming consistency with the average return on equity of 11.4% calculated from the sample of companies.

4.2 The property market.

The property sector comprises four main groupings – offices, industrial, retail and residential. Each main sector has a number of subsectors.

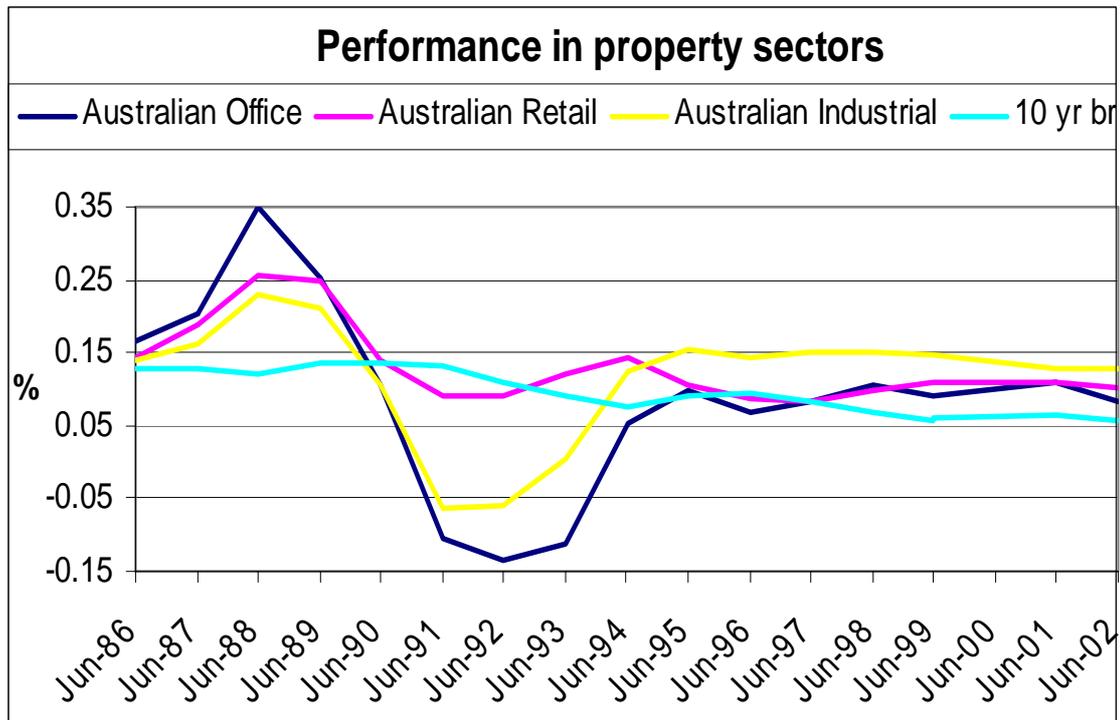
The Office sector comprises Premium, A and B and is further delineated into geographic areas (city, CBD, suburban centres eg St Kilda Road, North Sydney). Each of these subsectors recognises unique features of the location and the likelihood of securing quality rental income.⁴² The most secure rental income comes from CBD premium offices⁴³, but even these properties have no guaranteed income.

A review of the long term investment performance of each of the sectors compared to the 10 year bond rate over the same term shows that the property market risk premium is quite modest. Average residential house price growth shows a compounding return over 20 years of 8.5%⁴⁴.

⁴² See appendix 10 which provides a breakdown of the investment yields for the various property types

⁴³ See appendix 11 for a description of what constitutes “premium” office

⁴⁴ Derived from information provided by Real Estate Institute of Australia and RBA, and published in the AFR 13 Dec 03



Source: Property Council of Australia, RBA

Analysis of the nominal sectoral results over the time shows that office returns were 8.9%, industrial property investments returned 11.8%, and retail investments returned 13.2%. Over the same period the 10 year bond rate averaged 9.3%, implying a property market risk premium ranging from 2% to 4%, based on an equity beta of 0.4⁴⁵ and gearing of 60%.

Comparison of property investment to regulated energy transport businesses

There are many similarities between property and energy transport businesses, and interestingly a few disadvantages incurred by property but not by energy transport businesses. Energy transport businesses would seem to have no disadvantages when compared to property.

1. Both are high capital investment businesses
2. Both have relatively modest operating costs
3. Both are long term investments
4. Security of investment of both is recognised by lenders allowing gearing of both investments to a similar extent
5. Both operate on long term firm income streams
6. Both have a high degree of certainty of income stream in the medium term (property rentals are typically for 5-15 year periods)

⁴⁵ Based an equity beta for property trusts similar to that calculated by the AGSM – see appendix 5

7. Both face similar environmental constraints during development and operation
8. Investment in both is effectively secured by the increasing population

Notwithstanding these similarities energy transport businesses have certain benefits over property investments

1. Property values can and do fall in the short term but do recover in the medium term giving medium term confidence in value maintenance. Once valued, regulated electricity transport businesses have their asset values maintained by use of indexation.
2. Property has the risk of failure of its tenants leading to the need to secure a replacement income stream. Regulated electricity transport is granted a revenue cap insulating them from the risk of loss of income
3. Investment in property is highly competitive, whereas there are significant barriers to new entrants in the regulated electricity transport industries
4. Existing property has to compete with a wide range of existing properties and new developments, whereas the regulated energy transport businesses have little or no real competition as each energy type has unique features which the others
5. Electricity has its future income stream effectively underwritten by large numbers of consumers and a stable energy demand. Conversely, property investment is highly competitive

When compared in this way, it is quite clear that at worst regulated electricity transport should be compared to property investments, but in all fairness there is a greater level of security available to investors in regulated energy (electricity and gas) transport businesses than is available to investors in property. The closest property classes in similarity to regulated energy transport would be the premium CBD offices, with their more limited competition due to location (less land availability), high entrant costs and high capital investment. Returns from this class of investment show an average nominal yield of ~6%⁴⁶, implying a market risk premium of ~0.5% when compared to the average bond rate of over 8% for the same period (and an equity beta of 0.5 and gearing at 60%).

Whilst residential property exhibits a similar capital growth to the return earned by "Offices" this class is dominated by owner/investors with a need for shelter, which does not replicate the decision for investment seeking a return.

Recapping the analysis:

1. Comparisons between the benefits of investment in electricity transport assets and property show a similar high degree of security, with perhaps electricity transport enjoying a greater level of security than property.

⁴⁶ See appendix 10

2. Returns from property investment show that returns from this class of investment shows a property market risk premium is in the range of 0 to 2%, with the MRP from the more secure property investment being at the low end and from the speculative investment area being about 2%.
3. Based on the returns for premium CBD property, an equity beta of 0.5 and a MRP of 2% are appropriate settings for current returns on this class of investment. Comparing the various classes of property, it would appear that electricity transport businesses could be equated to the premium CBD office property class. The returns for MRP and equity beta for this class of investment are consistent with the returns calculated from the sample of companies investigated, supporting the conclusions reached.

5. Other regulatory issues

5.1 The Risk Free Rate - 5 or 10 year bond rates

“The Tribunal is satisfied that the use by GasNet of a ten year Commonwealth bond rate to determine a Rate of Return on equity under [s 8.30](#) of the Code was a correct use of the CAPM and was in accordance with the conventional use of a ten year bond rate by economists and regulators where the life of the assets and length of the investment approximated thirty years in the MRP calculation and the risk-free rate. The use of the CAPM with these inputs in the Tribunal's view, produces a Rate of Return on equity which [s 8.31](#) treats as one commensurate with the relevant market conditions and risk for the purposes of [s 8.30](#).”⁴⁷

There is continuing debate as to whether long dated bonds should be used for setting the “risk free rate” used in the CAPM formula. One argument is that the regulator should use long dated bonds as this “should ensure proper matching with the life of the underlying assets.” The counter argument (used by the ACCC on the advice of Lally⁴⁸) is that the risk free period should replicate the regulatory period, as the period used for the risk free rate closest approximates the expected risk factors which will apply over the regulatory period.

It would seem from the decision of the Australian Competition Tribunal that it supports the view that the risk free rate should be the 10 year bond rate as this follows “the conventional use of the ten year bond rate by economists and regulators”. However the Tribunal does not comment on the what adjustments should be made to the other factors which modify this basic risk free input, such as the debt margin, the market risk premium, the debt beta and equity beta.

There are two issues that arise from the analysis on what risk free rate period should be used.

It is alleged that long dated bonds are needed to reflect the life of the asset. This matter has been debated extensively, with the ACCC firmly taking the view that the use 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 formula a risk profile which does not apply to the period in question. Analysis shows that the difference between the five year and ten year bond rates averages over the past 12 years, some 25 basis points, with the ten year rate always the highest. Thus, to use the 10 year bond rate for a five year regulatory period increases the calculated WACC.

⁴⁷ AUSTRALIAN COMPETITION TRIBUNAL, Application by GasNet Australia (Operations) Pty Ltd [2003] ACompT 6, clause 48

⁴⁸ “Determining the risk free rate for regulated companies” a paper for the ACCC, July 2002, by Assoc Professor Martin Lally, School of Economics and Finance, Victoria University of Wellington.

Adequate benchmarking of the awarded returns by the regulator would identify whether the use of the long dated bond has permitted the regulated business an excessive WACC. Accepting the decision of the Australian Competition Tribunal, to ensure the regulators do not award returns which are not in keeping with benchmarking requires adjustment to the other input parameters to the CAPM formula.

The second issue that needs attention is 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. As has been seen from the analysis of market data, the market risk premium varies with the risk free rate used to develop the market risk premium. As the forward bond yield curve is historically rising, the market risk premium based on the 5 year bond rate is larger than the market risk premium used for the 10 year bond rate. There is no doubt that consistency must apply. If the 5 year bond rate is to be used for the risk free rate, then the market risk premium associated with the shorter bond duration should also be used. Providing both inputs used arrive from the same analysis, the equity element of the WACC calculation will be unaffected by the choice of the long or short term risk free rate.

However, using the shorter term risk free rate will have an impact on the interest bearing element of the WACC calculation. Thus the regulators should, after benchmarking the calculated return, assess whether the debt margin and debt beta should be adjusted to ensure the calculated outcome is consistent with actual market outcomes.

5.2 Regulation circularity

The class of equities for “regulated energy businesses” in Australia is too small to permit an independent assessment and what volume in the class there is, is too recent to be able to deliver a clear message as to the benefit that high returns awarded by regulators have delivered to the regulated 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 very 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 regulated business against international best practice. The approach taken by regulators basically allows the regulated businesses to maintain average performance, without the driving imperatives inherent in competitive enterprises to strive for best practice – ie to operate in the lowest cost quartile.

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.”⁴⁹

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 concern that reducing the returns might impact on the future investment by the regulated businesses has obviously overridden the import that there is clear doubt that the allowed returns should remain at the current high level.

This means that regulators have made little or no attempt to benchmark the proposed inputs to the CAPM formula, other than to slavishly use numbers used by other Australian regulators. The impact is that the results of the WACC development 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 any 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.

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

⁴⁹ From the Review of Gas Access Arrangements, Final Decision of the Essential Services Commission of Victoria, October 2002, page 336

the UK firms, and 0.2 for the US firms, *but which was not accorded significant weight.*"(emphasis added)⁵⁰

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."⁵¹ (underlining added)

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 commonly used by regulators in earlier decisions rather than assessing the merits of new evidence, fail to provide a result consistent 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.

We consider that a circuit breaker analysis has been provided by the returns determined by overseas regulators and by the further evidence on the operation of the Australian equities markets. Australian regulators continue to use inappropriate CAPM inputs without referencing the source of such data and make no attempt to benchmark their calculated outputs against any external overseas benchmark.

Until regulators commence the practice of benchmarking returns, there is every expectation that regulators will consistently award excessively high returns in the fear that they may have made a determination that is too low and so be accused of

⁵⁰ Review of Gas Access Arrangements, Final Decision of the Essential Services Commission of Victoria, October 2002, page 342.

⁵¹ *ibid* page 356.

sending a regulated business into financial default or causing a constriction in the amounts needed to be invested in the monopoly assets.

6. Conclusions

Based on recent research by a number of separate parties there is a strong view that the values of MRP = 6% and $\beta_e = 1.0$ currently used by regulators are too high when assessed against the *current* business climate and should be reduced. The research establishes that MRP = 3% and $\beta_e = 0.3-0.7$ are more appropriate for the current business environment for regulated networks.

Analysis of the largest 300 companies operating in Australia for the period 1989-2000 – which shows the lower return earned compared with those determined by regulators for regulated businesses - provides an interesting insight into the problems that have crept into the use of the CAPM formula by regulators of energy company assets.

In particular, the analysis shows that:-

1. **Overall returns.** Nominal and “real” returns earned by Australian companies operating in a competitive business environment when related to the total assets employed are lower than the regulated WACC’s awarded by regulators by as much as 200 basis points.
2. **Use of historical MRP.** The historical market risk premium has fallen over recent times, due to fundamental changes in the business environment now operating in Australia. As the CAPM is intended to be a forward looking method for setting regulated returns, use of average figures using data from over 100 years ago, does not accountably reflect the current and expected future financial environment conditions. Accordingly, more recent data should be used as a more appropriate basis for setting forward looking rates of return.
3. **Current MRP levels.** Our analysis shows that over recent years the MRP has averaged 3.0-3.30. This is consistent with the recent analysis from Mercer Consulting.
4. **Equity beta.** The equity betas used by regulators assume that regulated businesses are “average”. By adopting this assumption the businesses are gaining a higher return than need be the case. Regulators are not accepting that by granting a regulated return the market accepts that the regulated businesses exhibit a “conservative” rating, recognising that returns from them, while providing a relatively lower return (than other riskier businesses), offsets this by providing certainty of return. Thus, the market assesses regulated businesses as exhibiting a lower equity beta than unity. This Report has found that equity betas for regulated electricity transport businesses should be in the range of 0.5-0.7
5. **Applying MRP to DORC asset values.** Market risk premium is assessed from rates of return generated using historical depreciated actual values for assets. To apply an MRP generated on this basis to an asset value using a depreciated optimised replacement cost (DORC) basis (as used by

- regulators) is fundamentally flawed, and results in a much higher value for return on assets than should apply.
6. **Impact of gearing.** Regulators have assumed that gearing comprises 60% debt and 40% equity. Our analysis highlights that implied gearing is much higher (as high as 77%) but that this comprises a mix of interest bearing debt and non-interest bearing debt, with an equity element of 20-25% of total assets. As regulators use a higher level of equity and do not provide for non interest bearing debt in the CAPM formula the have, inflated the WACC calculation

When checking the outcomes from our analysis of the 300+ companies with the ASX 200 accumulation index and the property market a number of conclusions can be reached.

1. There is close correlation between the equity returns of companies in the sample and the ASX200 accumulation index, implying that the index can be used as a proxy for the return on equity
2. The analysis undertaken of the sample of companies replicates the performance of the publicly listed companies over the same period, providing confidence that the analysis is sustainable, and that the conclusions can be extrapolated into the wider equity market
3. The accumulation index is widely used as a measure of return from the ownership of equity in companies and therefore can be used as a good indicator of the average returns possible from long term investment in a company
4. Long term returns from investment in the accumulation index show that a nominal return on equity in Australian listed companies of 11.2% has been achieved since 1950, confirming consistency with the average return on equity of 11.4% calculated from the sample of companies
5. Comparisons between the benefits of investment in electricity transport assets and property show a similar high degree of security, with perhaps electricity transport enjoying a greater level of security than property.
6. Returns from property investment shows that returns from this class of investment shows a property market risk premium is in the range of 0 to 2%, with the MRP from the more secure property investment being at the low end and from the speculative investment area being about 2%.
7. Based on the returns on various classes of property, an equity beta of 0.5 and a MRP of 2% are appropriate settings for current returns on property and could also apply to similar types of investment such as electricity transport assets.

Overall, the analyses carried out on the capital markets provide further evidence that values that have been adopted by regulators for monopoly network business for $MRP = 6\%$ and $\beta_e = 1.0$ are too high and that the values of $MRP = 3\%$ and for $\beta_e = 0.5$ are more appropriate. These values confirm earlier assessments carried out by a wide range of independent and reputable analysts. Further, this new work

also confirms the view, of at least the ESCoV, that the values for MRP and β_e regulators currently use might well be reduced in light of current trends.

Appendix 1**The capital asset pricing model⁵²**

Clause 6.2.2 of the code requires that one of the key outcomes that the revenue regulatory regime administered by the Commission, must provide for is:

a sustainable commercial revenue stream, which includes a fair and reasonable rate of return to *Transmission Network Owners* and/or *Transmission Network Service Providers* on efficient investment, given efficient operating and maintenance practices.

Schedule 6.1(2.2.2) of the code states that various methods can be applied to estimate the return on equity (R_e) component—for example, prices to earnings ratios, dividend growth model and arbitrage pricing theory. However, the code states that the CAPM remains the most widely accepted tool applied in practice to estimate the cost of equity.

The CAPM calculates the required return given the opportunity cost of investing in the market, the market's own volatility and the systematic risk of holding equity in the particular company. The CAPM determines the rate of return from the perspective of the investor measured in cash flow terms. This includes the returns from year to year and any net appreciation in the capital.

The CAPM formula is:

$$R_e = R_f + \beta_e(R_m - R_f)$$

where:

- | | |
|-----------------|--|
| $R_f =$ | the risk free rate of return—usually based on government bond rates of an appropriate tenure |
| $(R_m - R_f) =$ | the market risk premium (MRP)—the return of the market as a whole less the risk free rate |
| $\beta_e =$ | the relative systematic risk of the individual company's equity |

The CAPM expresses the rate of return as the post-tax nominal return on equity. This can be adjusted to allow for debt to derive the corresponding return on assets, otherwise known as the WACC.

Key parameters

The key parameters relevant to WACC/CAPM analysis are:

- the risk-free interest rate (R_f)
- the expected rate of inflation (F)
- the cost of debt (R_d)
- the market risk premium (MRP)

⁵² ACCC Decision South Australian Transmission Network Revenue Cap 2003-2007/08
Date: 11 December 2002 File No: C2001/1094, pages 16 and 17

- the likely utilisation of imputation credits (γ)
- the likely level of debt funding (D/V)
- the equity beta (β_e) of the company
- the effective tax rates on equity (T_e)

Below is a table⁵³ presented in the ACCC Final Decision on ElectraNet showing the comparison between claimed WACC elements and awarded elements of the WACC calculation for ElectraNet. Of particular note is that levels of MRP and β_e between claimed and awarded do not show a marked difference, despite the fact that these two elements have a major impact on setting WACC at levels above those achieved by business in a competitive environment.

Table 3.6 Comparison of cost of capital parameters proposed by ElectraNet and the Commission

Parameter	Final decision	Draft decision	ElectraNet's proposal
Nominal risk-free interest rate (R_f)	5.17%	5.41%	5.90%
Expected inflation rate (F)	2.07%	2.30%	2.34%
Debt margin (over R_f)	1.22%	1.30%	1.72%
Cost of debt $R_d = R_f + \text{debt margin}$	6.39%	6.71%	7.62%
Market risk premium ($R_m - R_f$)	6.00%	6.00%	6.50%
Debt funding (D/V)	60%	60%	60%
Value of imputation credits γ	50%	50%	50%
Asset beta β_a	0.40	0.40	0.45
Debt beta β_d	0.00	0.00	0.00
Equity beta β_e	1.00	1.00	1.12
Nominal post-tax return on equity	11.17%	11.40%	13.66%
Post-tax nominal WACC	6.07%	6.39%	8.66%
Pre-tax real WACC	7.17%	7.12%	8.46%
Nominal vanilla WACC	8.30%	8.59%	10.03%

⁵³ ACCC Decision South Australian Transmission Network Revenue Cap 2003-2007/08
Date: 11 December 2002 File No: C2001/1094, page 41

Appendix 2 – Source of core data

The data used in the evaluation of the 300+ largest Australian public and private companies was provided by IBISWorld. The data was requested to be provided in the format which gave ten years of financial performance of the 300 largest companies operating in Australia, based on revenue. In all 4423 results were provided over the period 1989 to 2003. The data provided included annual results in the following categories

Business name and industry
Revenue for the year
Net profit before tax (NPBT)
Interest paid
Total assets
Shareholders funds
Abnormal items
Extraordinary items

Where sufficient data was not provided for the needs of the analysis, those companies and the results were excised from the sample. Year 2003 was not included

Averaging has been based on weighting related to volume for each year, and then averaged across all years in the sample to generate average returns over the period

As companies have different accounting cut-off dates, results were allocated into calendar years

EBIT was calculated by the addition of NPBT and interest paid

Pretax nominal return on assets was calculated as $EBIT / \text{total assets}$

Pretax nominal return on equity was calculated as $NPBT / \text{shareholders funds}$

As the CAPM assumes all assets to be the sum of debt + equity and allocates gearing as $\text{debt} / (\text{debt} + \text{equity})$, the analysis assessed gearing as $(\text{assets} - \text{shareholder funds}) / \text{assets}$.

Comparative data on interest, bond yields and CPI were sourced from the Australian Bureau of Statistics website and the Reserve Bank of Australia website, as were ASX indices for ASX 200 growth, ASX Accumulation and dividend yields.

“Real” returns were calculated by subtracting coincident inflation (CPI) from the calculated nominal returns

Other data. Other data, such as on inflation, bond rates, share indices were sourced for the website of the Reserve Bank of Australia, and on specific shares and sectoral share indices were sourced from CommSec, a division of the Commonwealth Bank of Australia

Appendix 3

Details of IBISWorld, provider of the core source data for this research

IBISWorld has its origin in the formation of IBIS Research Services in 1971 operating as a successful market research organization. *IBISWorld* later specialised in the long range forecasting of industries and the business environment at large, with an emphasis on providing information for strategic planning and research purposes.

For the last 12 years, *IBISWorld* has produced many award winning searchable databases using the latest technology at each stage. The latest version of the *IBISWorld* web site went on-line in February 2001.

IBISWorld is now building a worldwide network of unique and comprehensive business intelligence information. With partners in Taiwan and Indonesia, and plans to expand to the US and Europe, *IBISWorld* is poised to offer a truly global information solution in the years to come.

IBISWorld extensively covers every industry, the major enterprises in those industries and the business conditions they face for selected economies, providing valuable strategic and tactical business environment information. It uses reliable source material as well as professional insights, within a consistent structure, to provide your business with the power of information

For nearly thirty years, *IBISWorld* has been providing corporate researchers librarians and analysts with high value-added information on companies, industries and economies as a resource base for the preparation of sophisticated submissions, presentations and strategic recommendations.

It provides sales and marketing executives with vital intelligence information on companies, industries and economies enabling effective identification of key prospects and providing for strategic and accurate target marketing.

Its systems provide added assistance for access, monitoring and analysis of information on companies and their respective business environments, enabling effective risk management and strategic business development.

Appendix 4

NATIONAL THIRD PARTY ACCESS CODE FOR NATURAL GAS PIPELINE SYSTEMS

8.10 When a Reference Tariff is first proposed for a Reference Service provided by a Covered Pipeline that was in existence at the commencement of the Code, the following factors should be considered in establishing the initial Capital Base for that Pipeline:

- (a) the value that would result from taking the actual capital cost of the Covered Pipeline and subtracting the accumulated depreciation for those assets charged to Users (or thought to have been charged to Users) prior to the commencement of the Code;
- (b) the value that would result from applying the "depreciated optimised replacement cost" methodology in valuing the Covered Pipeline;
- (c) the value that would result from applying other well recognised asset valuation methodologies in valuing the Covered Pipeline;
- (d) the advantages and disadvantages of each valuation methodology applied under paragraphs (a), (b) and (c);
- (e) international best practice of Pipelines in comparable situations and the impact on the international competitiveness of energy consuming industries;
- (f) the basis on which Tariffs have been (or appear to have been) set in the past, the economic depreciation of the Covered Pipeline, and the historical returns to the Service Provider from the Covered Pipeline;
- (g) the reasonable expectations of persons under the regulatory regime that applied to the Pipeline prior to the commencement of the Code;
- (h) the impact on the economically efficient utilisation of gas resources;
- (i) the comparability with the cost structure of new Pipelines that may compete with the Pipeline in question (for example, a Pipeline that may by-pass some or all of the Pipeline in question);
- (j) the price paid for any asset recently purchased by the Service Provider and the circumstances of that purchase; and
- (k) any other factors the Relevant Regulator considers relevant.

Appendix 5**Average equity beta by industry listed on the ASX**

Industry index	Average Equity Beta
Property trusts	0.366
Alcohol and tobacco	0.420
Food and household	0.424
Transport	0.463
Diversified industrials	0.719
Engineering	0.756
Building materials	0.857
Paper and packaging	0.953
Developers and contractors	0.954
Banks and finance	0.967
Infrastructure and utilities	0.983
Tourism and leisure	1.084
Chemicals	1.128
Investment and financial services	1.131
Retail	1.269
Mining and energy	1.305
Insurance	1.394
Other metals	1.502
Miscellaneous industrials	1.568
Diversified resources	1.571
Gold	1.678
HealthCare and bio-technology	1.899
Media	2.076
Telecommunications	2.772

Source: Australian Graduate School of Management centre for research in finance; risk measurement service

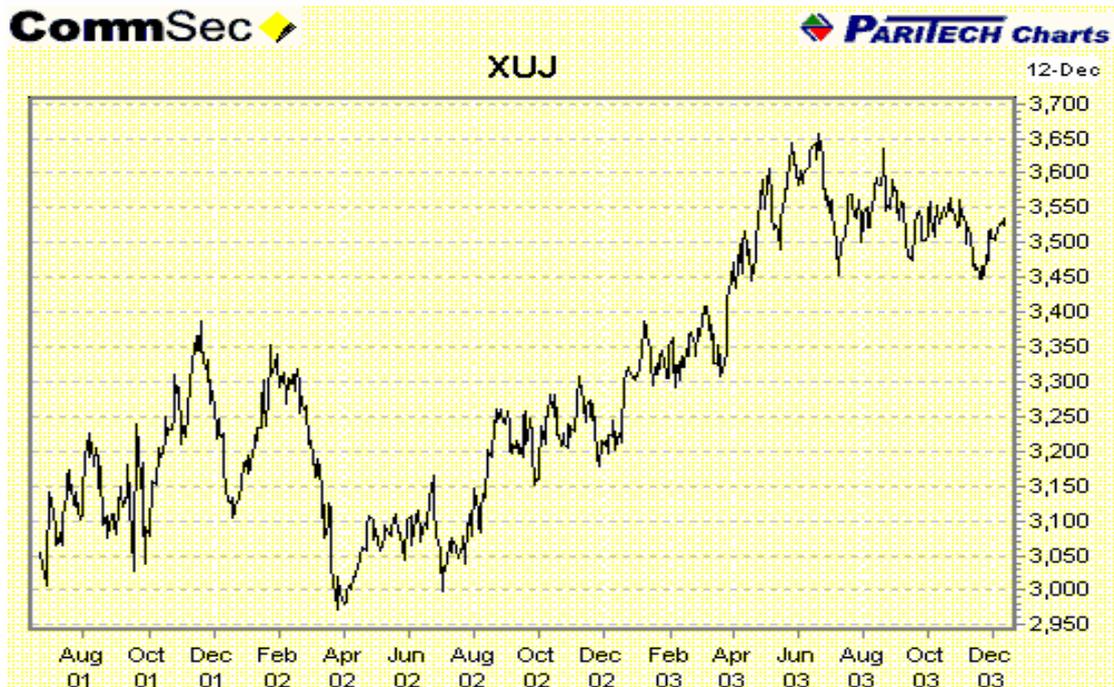
Appendix 6

Companies comprising the "Utilities" sector of the ASX

Source of data: Australian Financial Review and CommSec

Company	Type	Market cap
Advanced Energy	Energy technology	\$10m
Australian Energy	Electricity retailer	\$34m
Energy Developments	Electricity generator/ developer	\$319m
Energy World Corp	Electricity and gas reseller	\$22m
Envirovision	Developer of renewable energy	\$7m
Geodynamics	Developer geothermal power systems	\$59m
Horizon Energy	Investor in power generator (25% of Loy Yang A)	\$23m
Pacific Energy	Power generation	\$4m
Pacific Hydro	Power generation using renewable energy	\$377m
Solar Energy	Manufacturer solar powered equipment	\$8m
Alinta	Gas and electricity distribution	\$1040m
AGL	Gas and electricity retailing and distribution	\$4995m
Australian Pipeline Trust	Gas transmission	\$627m
Envestra	Gas distribution	\$720m
GasNet	Gas transmission	\$291m
Novera	Developer of renewable energy	\$46m

Daily movement of ASX "Utilities" Index since inception



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Appendix 7**Summarized data from IBISWorld on Australia's 300 largest companies****Bond rates sourced from Reserve Bank of Australia**

year	# companies in sample	Total Revenue (\$k)	NPBT + Interest Paid = EBIT (\$k)	NPBT (\$k)	Total Assets (\$k)	Shareholders Funds (\$k)	gearing	ebit/assets = RoA	npbt/sh funds = RoE	5 yr br	10yr br
1989	195	\$272,086,585	\$65,877,091	\$28,083,907	\$666,027,839	\$152,501,071	0.77	0.0989	0.1842	14.16	13.43
1990	209	\$302,853,859	\$76,950,353	\$22,525,531	\$809,739,707	\$194,989,165	0.76	0.0950	0.1155	13.40	13.20
1991	226	\$321,032,703	\$67,136,356	\$17,618,332	\$898,147,819	\$245,337,386	0.73	0.0747	0.0718	10.51	10.79
1992	233	\$318,628,535	\$54,492,781	\$12,721,193	\$912,329,034	\$225,488,260	0.75	0.0597	0.0564	8.42	9.19
1993	246	\$333,503,234	\$61,443,052	\$25,429,451	\$995,020,709	\$244,675,403	0.75	0.0618	0.1039	6.79	7.37
1994	262	\$370,843,850	\$65,735,202	\$32,401,678	\$1,034,827,778	\$262,331,583	0.75	0.0635	0.1235	8.47	8.93
1995	278	\$412,114,901	\$77,723,735	\$37,325,228	\$1,169,267,665	\$302,274,802	0.74	0.0665	0.1235	8.79	9.30
1996	296	\$457,740,980	\$87,121,323	\$41,677,871	\$1,303,634,581	\$333,778,082	0.74	0.0668	0.1249	7.85	8.20
1997	300	\$518,205,020	\$93,961,336	\$43,740,231	\$1,575,832,119	\$372,893,255	0.76	0.0596	0.1173	6.49	6.94
1998	316	\$571,811,373	\$103,627,999	\$52,851,412	\$1,782,738,995	\$412,609,034	0.77	0.0581	0.1281	5.26	5.53
1999	329	\$623,612,954	\$98,486,941	\$50,115,556	\$1,896,700,488	\$420,211,182	0.78	0.0519	0.1193	5.72	6.02
2000	343	\$724,771,154	\$130,855,168	\$71,661,622	\$2,417,818,364	\$504,909,504	0.79	0.0541	0.1419	6.27	6.32
2001	352	\$774,611,037	\$123,897,950	\$55,555,240	\$2,647,728,589	\$571,480,648	0.78	0.0468	0.0972	5.23	5.62
2002	326	\$777,349,401	\$103,817,759	\$49,176,073	\$2,614,218,520	\$588,629,242	0.77	0.0397	0.0835	5.53	5.84

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Appendix 8**Summarized data from IBISWorld on Australia's 300 largest companies****Companies with regulated assets,**

Electricity transport companies in the sample which have regulated assets are AGL, Aurora Energy, Energex, EnergyAustralia, Enertrade, Ergon Energy, ETSA Utilities, Integral Energy, Origin Energy, PowerCor, TXU Australia and Western Power

Year	# companies in sample	Total Revenue (\$k)	NPBT + Interest Paid = EBIT (\$k)	NPBT (\$k)	Total Assets (\$k)	Shareholder funds (\$k)	gearing	ebit/assets = RoA	npbt/sh funds = RoE
1995	6	\$8,713,017.00	\$1,411,239.00	\$894,777.00	\$19,631,936.00	\$9,260,059.00	0.53	0.0719	0.0966
1996	8	\$12,363,713.00	\$1,878,912.00	\$1,134,705.00	\$25,955,877.00	\$11,922,739.00	0.54	0.0724	0.0952
1997	8	\$15,598,119.00	\$2,136,111.00	\$1,294,945.00	\$27,172,499.00	\$12,705,265.00	0.53	0.0786	0.1019
1998	8	\$13,351,311.00	\$2,093,541.00	\$1,441,987.00	\$26,232,698.00	\$13,008,262.00	0.50	0.0798	0.1109
1999	10	\$15,503,372.00	\$2,284,447.00	\$1,429,160.00	\$30,008,449.00	\$13,000,967.00	0.57	0.0761	0.1099
2000	13	\$18,602,523.00	\$2,881,217.00	\$1,799,692.00	\$35,227,887.00	\$15,022,585.00	0.57	0.0818	0.1198
2001	14	\$19,528,612.00	\$2,679,703.00	\$1,202,020.00	\$43,334,505.00	\$17,117,793.00	0.60	0.0618	0.0702
2002	13	\$19,495,935.00	\$3,119,283.00	\$1,901,152.00	\$42,426,453.00	\$18,347,939.00	0.57	0.0735	0.1036

Appendix 9 - Typical Investment guidelines

SCHEDULE 2

INVESTMENT OBJECTIVES AND INVESTMENT GUIDELINES

Investment Objectives

I. Objectives:

The objective is to outperform the benchmark index by % per annum., before fees, over rolling three year periods.

Investment Guidelines

II. Investment Process;

The portfolio will be managed using the "Global Thematic" investment process. The thematic approach is based on identifying underlying secular trends whose outturn will impact the pricing of equities over the medium term. The thematic portfolio is built by populating the portfolio with securities of companies favorably exposed to these themes and whose prices do not already discount this information.

The fund manager will promptly notify the Client of any significant change made to the process.

III. Benchmark:

The portfolio return will be compared with the Standard & Poors, ASX 300 Index, with net dividends reinvested [*the ASX 300 accumulation index*], in Australian dollar terms or such other benchmark determined by the Trustee in accordance with the definition of "benchmark" in the deed.

IV. Currencies:

The currency of the portfolio is Australian Dollars.

V. Investment Universe

The Investment Universe is limited to investment in Australia

VI. Permitted Investments

Permitted Investments are Eligible Equity Investments, Cash and Eligible Derivatives.

VII. Portfolio Restrictions

1. Up to 100% of the portfolio may be invested from time to time within the Investment Universe,

Appendix 10. – Average yields on property sales.



2003 Research by Tony Crabb

AVERAGE ANNUAL INVESTMENT YIELDS

September 1988 – June 2003

		Grade	Average %	Average Range (%)
Melbourne Industrial	North West	Prime	9.34	9.00 – 12.00
	North West	Secondary	11.26	10.50 – 15.00
	City Fringe	Prime	9.16	7.50 – 12.00
	City Fringe	Secondary	10.53	9.50 – 13.50
	South East	Prime	9.00	8.00 – 11.00
	South East	Secondary	10.86	10.00 – 13.75
Melbourne CBD Office		Premium	6.00	5.00 – 7.75
		A	6.66	4.75 - 9.00
		B	7.31	6.5 – 9.5
St Kilda Road Office		A	7.97	7 – 11
		B	9.75	8 – 14
Surburban Office		A	8.73	7.50 – 11
		B	10.95	10 – 14
Brisbane Industrial	Northside	Prime	10.00	9.13 – 11.00
Brisbane CBD Office		Premium	7.07	5.40 - 8.30
		A	7.74	6.50 - 8.63
Sydney Industrial	Inner West	Prime	9.41	8.75 – 12.00
	South Sydney	Prime	9.38	8.25 - 11.75
Sydney CBD Office		Premium	5.67	4.50 – 7.00
		A	6.42	5.10 – 8.25
		B	7.64	6.13 - 10.13
North Sydney Office		A	7.57	7.35 – 9.63
		B	8.27	7.50 – 10.15
Chatswood Office		A	8.21	7.50 – 10.75
		B	9.14	8.50 - 11.50
Parramatta Office		A	8.95	7.75 – 11.75
		B	9.63	8.75 – 12.00

Source: FPD Savills Database

Appendix 11 – Office grade definitions.

Source Property Council of Australia

Grade	Size	Floorplate	Finish	Technical Services
Premium	<p>Sydney & Melbourne CBDs generally >30,000 sq.m.</p> <p>Other CBDs generally >20,000 sq.m.</p>	>1,000 sq.m. largely column free	<p>A landmark office building located in major CBD office markets which is a pace setter in establishing rents and includes:</p> <ul style="list-style-type: none"> • 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. 	<p>State of the art technical services will typically include the following:</p> <ul style="list-style-type: none"> • Heating, Ventilation and Air-condition System - Multiple zones of approximately 70 sq.m. with around 25 watts per sq.m. for tenant equipment. The system should also have a supplementary fresh air system, auxiliary condenser water loop for tenant use and capacity for tenant exhaust risers. • Lifts – Waiting interval not to exceed 25 seconds, handling capacity in excess of 15% and a high quality ride with low noise. At least one dedicated goods lift. • Power – Minimum of 25 watts per sq.m. load capacity. Dedicated data risers should be available. • Lighting – High quality ultra low brightness fittings. • Building Intelligence – High quality building automation system, 24 hr access (card key), after hours air-conditioning dial-up, energy and stand-by power management, manned control room, perimeter security, and closed circuit TV. • Standby Power – Full power for all essential services and ventilation and at least 50% power for lighting and lifts.
Grade A	<p>Sydney & Melbourne CBDs generally >10,000 sq.m.</p>	> 600 sq.m. largely column free	<p>High quality space including:</p> <ul style="list-style-type: none"> • good views/outlook; • quality lobby finish; • on-site undercover parking; • quality access to/from an attractive street setting; and, • high quality presentation and maintenance. 	<p>High quality technical services will typically include the following:</p> <ul style="list-style-type: none"> • Heating, Ventilation and Air-condition System - Multiple zones of approximately 100 sq.m. with around 15 watts per sq.m. for tenant equipment. The HVAC should have an auxiliary condenser water loop for tenant use. • Lifts - Waiting interval not to exceed 30 seconds, handling capacity around 14% to 15% and a good quality ride. • Power – Minimum of 15 watts per sq.m. load capacity. • Lighting – Lower quality ultra low brightness fittings. • Building Intelligence – Direct digital controls, 24 hr access with card key and off site alarm monitoring, key switch after hours air-conditioning. • Standby Power – Full power for essential services and full ventilation.