
# Gas Pipelines Inquiry: Cross-submission

**13 August 2004**

## Introduction

1. Powerco welcomes the opportunity to make this cross-submission to the Commission's Gas Pipelines Inquiry. The principal focus of this submission is to address key issues arising from the recent four-day conference.

2. During the conference, the Commissioners and their advisers explored a range of issues and ideas with various expert witnesses and company representatives. In this cross-submission, Powerco addresses three key propositions which the Commission and its experts considered:

   (a) The Commission has adopted a "conservative approach" in undertaking its net acquirer benefit (NAB) test. On this basis, the Commission believes that its NAB assessment is likely to under-estimate the benefits of control.

   (b) The Commission has expressed concern that asset acquisition prices that exceed ODV may reflect the capitalisation of monopoly rents.

   (c) The Commission believes that price control can be imposed without significantly increasing the costs of regulation or adversely affecting dynamic efficiency.

   The purpose of this cross-submission is to respond to each of these three propositions in turn and to explain why each is incorrect. In doing so, we draw on, amongst other things, the experience in Australia of price control regulation. It is self-evident that the issues raised in this submission must be carefully addressed in the Commission's final report.

3. Powerco has also re-examined the NAB test in the Commission's Draft Report and has recalculated the NAB to correct for errors and anomalies in the Commission's calculations. These revised calculations are presented as a conclusion to the discussion on the Commission's first proposition "(a)". Powerco invites the Commission to consider the revised calculations very carefully – especially in the light of the significant consequences of introducing control.

4. Before turning to a detailed examination of the three propositions listed above, Powerco wishes to reiterate its concerns that the Commission's approach to assessing the case for imposition of control:

   - does not, in Powerco's view adequately recognise the risks faced by the company in recovering its sunk costs in a market characterised by a high risk of resource depletion; and

   - is based on the false premise that Powerco does not face workable or effective competition.

5. The view of the Commission in relation to the question of effective competition contrasts rather starkly with that of the Australian Productivity Commission (PC), which has just published the final report of its inquiry into regulatory arrangements governing Australian gas networks. It is particularly noteworthy that the PC stated:

> "The existence of gas pipelines that exhibit natural monopoly characteristics is insufficient to conclude that these pipelines have enduring market power which can be misused. Consideration also needs to be given to the nature of the demand characteristics for the services of pipelines. A number of competitive forces and factors can impact on demand and constrain market power.
>
> The demand for gas is derived from the demand for the goods or services produced using natural gas as an input. Gas is often supplied to industries that produce commodities sold in competitive markets (such as mineral processing and electricity generation). In such industries, end use might be sensitive to the transportation price. New pipelines (both transmission and distribution) are often developed in contestable markets, where they compete vigorously to secure sufficient load for the pipeline from prospective users. For transmission pipelines, securing such load helps to reduce both the developer's exposure to risk and to underwrite investment. In addition, large end users might represent a large proportion of the pipeline's capacity and therefore might have significant, countervailing bargaining power. Further, gas often has other close substitutes in end use, such as coal, electricity, LPG, oil and distillate, particularly in the case of distribution networks.
>
> In the above circumstances, a rise in the relative price of gas could result in a significant loss of sales and a decrease in profit, particularly in the medium and long term, as users replace gas consumption with a substitute. Consequently, pipeline operators can find the exercising of market power unsustainable."[1]

6. Powerco urges the Commission to adopt an approach that places greater weight on these factors. In particular, as noted in further detail in the following submission, we urge the Commission to carefully consider the findings and recommendations of its Australian counterpart – the Australian Productivity Commission – on the costs and benefits of subjecting gas networks to price control.

7. In making references in this cross-submission to regulatory arrangements in Australia, Powerco is recognising the broader issue of fostering and enhancing a trans-Tasman business environment. The Australian Productivity Commission has recently produced an Issue Paper[2] which examines the options for achieving greater cooperation, coordination and integration of Australian and New Zealand competition and consumer protection policy and law. Similarly, whilst the Commission should address New Zealand's particular circumstances in its work, it is equally important to consider how prospective investors from Australia and elsewhere might view New Zealand's regulatory arrangements. In this context, lessons from overseas arrangements are particularly relevant.

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1 Productivity Commission 2004, *Review of the Gas Access Regime*, Report no. 31, Canberra, page xxv.

2 Productivity Commission 2004, Australian and New Zealand competition and consumer protection regimes – Issues Paper.

## Proposition (a): The Commission has taken a conservative approach

8. In the Draft Report, the Commission makes the following observation regarding "conservative" estimates:

> "In addition, the Commission considers that there is likely to be some built in conservatism in the data provided by the gas pipeline business which suggests that the estimate of excess returns (and allocative inefficiency) is likely to be conservative. The 25% figure previously used to discount the size of excess returns (transfers) may therefore be overstated for the purposes of this Inquiry. While the Commission has made adjustments to some of the data (discussed in the business-specific chapter), it considers that the results remain conservative." (Draft Report, paragraph 5.75.)

Although the Draft Report includes some "sensitivity analysis", it does not make any other explicit references to "conservative" estimates or assumptions.

9. The limited reference to "conservative" assumptions in the Draft Report contrasts sharply with the following comments from Commissioner Rebstock at the conference:

> "I'll just put to you the long list of [assumptions] that might suggest we've taken a conservative approach.
>
> We ignored revaluation gains prior to 1997. When we looked at forecast and actual figures we didn't, in a significant way, challenge common costs and direct costs; not yet anyway. When we looked at actual figures, we didn't challenge the value of ODV, we pretty much largely accepted it, as well as depreciation. The value and scope of other assets were unchallenged, depreciation on other assets was unchallenged. Interest expense allocation for tax; we're looking at that but we've taken the numbers from the companies. Forecast figures revenue, including possible future price increases was unchallenged, demand projections unchallenged, CapEx unchallenged, direct cost including maintenance and OpEx unchallenged, revaluation gains looking forward for the most part were unchallenged. Any work in progress that was presented to us was unchallenged. Optimisation, we assumed no gold plating or imprudent investment by the companies.
>
> We assumed no capital contributions by external players, we adopted a long-run model, we included metering that arguably is competitive and would have brought down the average and masked some of the excess returns if there were any in the non-competitive part, and on top of that, when we got to the finish on benefits, we discounted the estimated benefits of control by 20% to account for the costs of control, and in the case of allocative inefficiencies, we discounted it by 36%." (Comments from the Chair, transcript of hearing on 22 July 2004, pages 32 and 33.)

It is apparent from this statement that the Commission believes that it has adopted a "long-list" of conservative assumptions. The inference we draw from this proposition is that the Commission believes that its assessment of the NAB test is, if anything, likely to under-estimate the benefits of control.

10. Powerco notes that Commissioner Rebstock subsequently commented that it is important to be transparent regarding the adjustments that are being made by the Commission. In particular, the Commissioner commented that:

> "I think it's a really good point about being transparent about what adjustments you make at which bit of this assessment. When I read out the long list of other items that I mentioned to Mr Horton, it's very clear to me that we have to be very careful to know where we're compensating for what uncertainty and which part of the adjustment, and that comment has come through, and I think it's very valid and useful." (Comments from the Chair, transcript of hearing on 22 July 2004, page 82.)

11. Powerco agrees with Commissioner Rebstock's comments regarding transparency. In Powerco's view, however, a detailed assessment of all the assumptions will reveal that the Commission has not, in fact, conducted a conservative assessment of the NAB test. In particular:

- The "conservative" items listed by the Commission have potentially quite different magnitudes, and therefore some items in the "long list" may be much more material than others.

- The treatment of asset-related costs is crucial in determining whether the NAB assessment is in fact "conservative". Powerco does not believe that the Commission has been conservative on this point.

- Mr Geoffrey Horton has noted an implicit assumption in the Commission's conceptual framework which is not conservative, and could produce misleading results.

- The Commission's acceptance of Powerco's opex and capex estimates does not constitute a conservative approach.

Each of these issues is explored in turn below.

*The Commission's list of conservative assumptions*

12. As an approach, simply producing "a long list" of conservative assumptions does not demonstrate that the overall approach is conservative. Given that gas distribution is a capital intensive industry, assumptions regarding the appropriate asset valuation for the purposes of setting control are critical to the NAB assessment. Therefore, "conservative" assumptions regarding, for example, the treatment of metering is unlikely to compensate for errors in assessing asset-related costs.

13. As discussed below, Powerco's view is that the Commission has not adopted conservative assumptions in assessing Powerco's asset-related costs. There are two components to these costs – the asset valuation and the cost of capital. On both matters, the Commission's approach cannot reasonably be described as "conservative".

14. Powerco also notes that the Commission's assumption that there are no capital contributions from external parties is not in fact "conservative". Powerco's revenue data does not include capital contributions – and therefore the Commission's assumption is simply "correct" rather than "conservative".

*Treatment of asset-related costs*

15. Powerco's submissions have repeatedly observed that ODV valuations were not originally designed for setting price control. Powerco remains of the view that the valuations used by the Commission are not fit for purpose. This fact is borne out by the Draft Decision which states:

> "Powerco's valuations have been conducted by different owners, different consultants and at different times, and are now quite dated (up to five years old which predates the Handbook). [ ] An updated ODV valuation would be required to ensure a consistent valuation for Powerco's assets." (Draft Report, paragraph 11.39.)

In the absence of an up-to-date and consistently assessed asset valuation, Powerco's view is that the Commission should indeed adopt a conservative assumption. For example, the Commission could adopt an "opening value" for the asset base that allows for a properly conducted valuation that is fit for revenue-setting purposes. As far as we are aware, the Commission has not adopted such an approach.

16. Powerco has also provided the Commission with independent expert testimony from Professor Bowman on the cost of capital. It is clear from his evidence that the Commission's approach is far from conservative. In fact, the Commission's use of the 75$^{th}$ percentile has no statistical basis – and therefore is not demonstrably conservative. Professor Bowman commented:

> "…if the objective is to set WACC at a level that will encourage an appropriate amount of investment, and if underestimates of WACC are more onerous in a social sense than overestimation, then how the Commission sees this balance should guide its decision on a confidence level. So, its perspective on this asymmetry should guide its decision on a confidence level, and then to allow that confidence level to be applied it needs some statistical characteristics to range, and I don't think -- I don't know that any of us have actually attempted this; for example, Professor Lally's estimations, I don't think that he has explicitly said "well, these ranges are plus or minus 1 standard deviation", and there's no reason why we should have expected him to. In fact, in my earlier submission I wouldn't have done that in a precise way myself. But yet, if we want to actually acknowledge that what is going on here is statistical, like it or not it is inherently statistical, and we want to then address it in a way that reflects that, then I think we need ranges to be developed in a way that has some statistical content to it." (Professor Bowman, transcript of hearing on 22 July 2004, pages 77 and 78.)

17. Professor Bowman's submission to the Commission also challenged the WACC range proposed in the Draft Report. Professor Bowman's advice indicates an upper estimate of the cost of capital is approximately 11.7%. Applying this assessment may be considered "conservative" – but the

Commission has not adopted this approach. If the Commission adopted Professor Bowman's assessment, its NAB test would indicate that there is no benefit in applying control to Powerco.

18. Instead, the Commission is relying on Professor Lally's advice, which is out of step with overseas regulators and cannot be described as conservative. It is noteworthy that all regulators in Australia now use a 10-year bond rate for assessing the risk-free rate, despite Professor Lally's strongly held view that the bond maturity should be consistent with the duration of the regulatory period. It is also noteworthy that Professor Lally's position on this issue was rejected recently on appeal to the Australian Competition Tribunal. Following that appeal, The Australian Competition and Consumer Commission commented as follows:[3]

> "Some interested parties support using the risk-free interest rate which matches the length of the regulatory period. Alternatively, other interested parties believe that bond rates with terms matching the life of the assets should be used. Transmission assets have long effective lives, far exceeding the term of the most traded Australian bond with the longest maturity period (10 years). These parties suggest that 10-year bond yields should be used in the CAPM formula. Other Australian state regulators also use a 10-year bond rate.
>
> In December 2003, the Tribunal handed down its decision on its review of the ACCC's tariff determination for transportation services on GasNet's Victorian natural gas transmission network.
>
> Although the ACCC used a 5-year rate, the Tribunal accepted GasNet's approach to calculating the risk-free rate on the basis of a 10-year government bond rate. Following this decision, the ACCC stated that it would be guided by this finding in its future regulatory decisions."

Against this background, it is important that the Commission acts conservatively. Powerco does not believe that the NAB calculation presently reflects a conservative approach on WACC.

19. Following the conference, Powerco has received further advice from Professor Bowman in relation to WACC. Professor Bowman has addressed issues raised during the conference in his further advice (attached at Appendix 1), which concludes that:

- In his view, equity investments in New Zealand are more risky than equity investments in almost all other countries that might be used for comparisons of regulatory outcomes. The higher risk should translate to a higher market risk premium, which should then lead to a higher WACC. In this context, and within the conceptual framework provided by the CAPM, higher WACCs do not demonstrate conservatism or outcomes that are favourable to companies.

- Associate Professor Lally has estimated that the Market Risk Premium (MRP) for Australia should be 6%. Lally's position in

[3] ACCC Draft Decision on TransGrid's revenue cap, April 2004, page 79.

Australia equates to an estimate of a tax adjusted MRP for New Zealand of 8%.

- The risk free rate for estimating the cost of debt capital should be estimated as the yield on 10-year government bonds. Whilst this rate is only a proxy for the correct risk free rate to use in estimating the cost of debt for a company, it will, in Professor Bowman's view tend to result in an *under-estimation* of the true cost of debt for gas transmission companies.

20. Professor Bowman's further advice also notes the limitations associated with the use of stock market data to draw inferences about the relative risks of different markets (in this case, the New Zealand market and the S&P 500). He notes that:

> "If [the question] is put in one perspective, New Zealand looks substantially lower risk and hence lower expected return. But if the perspective is reversed, New Zealand looks very high risk relative to the US. In my opinion, this simply illustrates that this sort of analysis has substantial limits."

21. The differing views of experts regarding the interpretation of market data highlights the high level of uncertainty, imprecision and subjectivity associated with setting an appropriate level of WACC to be applied in a regulatory setting. This issue has been the subject of intense debate in Australia, where the Australian Productivity Commission (PC) recently published its final report on its review of the gas transmission and distribution access arrangements. It is well worth examining the findings of the PC's review, since the PC is an independent Australian Government agency that acts as the Government's principal advisory body on micro-economic reform and regulation. In its final report, the PC stated:[4]

> "While the debt costs of a service provider are relatively straightforward to assess, the return required by equity investors is not. The return on equity is typically estimated using the capital asset pricing model (CAPM). This method depends on the measurement of two contentious variables — a service provider's 'beta' (a measure of its risk relative to that of the total market for risky investments) and the market risk premium…
>
> Implementing the WACC/CAPM approach is not a precise science, given the numerous debatable assumptions involved. There is even disagreement on the precise formulas to use, due to different views on how issues such as tax should be treated. Hence, a range of plausible values can be generated for the regulatory rate of return using the WACC/CAPM approach…
>
> This debate highlights the fact that regulatory rates of return are set on the basis of many assumptions. Such assumptions are used because regulation is applied in a world of uncertainty. This uncertainty cannot be removed by requesting more information from service providers, or by hiring consultants to undertake studies.

[4] Productivity Commission (2004) *Review of the Gas Access Regime*, Report no. 31, Canberra. pages 297, 299, 302.

> There is disagreement among technical experts about how regulatory rates of return (WACC) in Australia compare to those in other countries. This illustrates the inevitable imprecision and subjectivity that occurs when regulators are required to approve reference tariffs…"
>
> Given that the CAPM is a theoretical model based on debatable assumptions, the Commission is concerned that the model has become a de facto requirement under the regime. This situation might have been facilitated by s.8.31 of the Gas Code, which describes the CAPM as a 'well accepted financial model'. The comments of the leading financial experts quoted by Allgas Energy would suggest otherwise. The Commission considers that it needs to be made more explicit that there is no single correct method to calculate a rate of return and there can be a range of plausible values used in applying a method. It is recommended that s.8.31 be reworded to reflect this."

22. Regulatory decisions on the cost of capital have potentially significant impacts on prices paid by consumers, returns earned by infrastructure owners, and the incentives for on-going investment in regulated infrastructure. The risks to economic welfare arising from regulatory error in estimating the cost of capital (along with other cost elements used to determine price controls) have also been highlighted by the Australian Productivity Commission. For instance, the PC's review of the national access regime (which was completed in September 2002) examined this point in considerable detail, and concluded that regulators should not be overly ambitious or precise in their efforts to remove perceived "monopoly rents" from the income streams of regulated businesses, because:

    - there is a significant risk that aggressive regulatory decision-making may severely diminish incentives for on-going investment in infrastructure;
    - the cost to society as a whole of insufficient infrastructure investment is far greater than the potential cost associated with regulatory decisions that are expressly aimed at providing incentives for on-going investment;
    - the information that is available to regulators in their decision-making is, unavoidably, characterised by a high degree of uncertainty; and
    - given this uncertainty, and the potential costs to society of overly aggressive regulatory decisions, there is a strong case for regulators' decisions to err in favour of encouraging more, rather than less infrastructure investment.[5]

23. As noted in further detail below, the PC's more recent review of the Australian gas access regime also highlighted the risks and potential costs associated with regulatory error under price cap arrangements.

24. In view of the potential costs to society of regulatory error, it is essential that the Commission properly adopts a conservative approach to assessing the asset-related costs – which comprise the WACC and the value of assets employed. The Commission's approach is not

[5] The Australian Government's interim response to the Productivity Commission's report (released in September 2002) endorsed the thrust of the Commission's recommendations.

conservative. If the Commission employed conservative assumptions, the NAB test would not show any benefit from control.

*Implicit assumptions in the Commission's framework*

25. The Commission's claim that it has adopted a conservative approach is also doubtful at a conceptual level. Mr Geoffrey Horton's independent expert advice is that there are numerous pricing methods and profiles which all potentially provide financial capital maintenance (FCM). The Commission's analysis is merely taking a snap-shot comparison of its preferred price path, and comparing this to Powerco's price path. Mr Geoffrey Horton comments:

> "The different methods can have the same net present value but different cost recovery profiles and, to repeat para 6.24, "If the Commission assesses returns on a different basis to that used by the company to set prices, then the assessment of excess returns … may result in misleading findings". (Mr Geoffrey Horton, submission to the Gas Pipelines Inquiry.)

26. In other words, the Commission's Draft Report rightly acknowledges that the snap-shot comparison of revenue is potentially misleading, and must be interpreted with great care. Powerco does not believe that the Commission has estimated the potential magnitude of this error – or, therefore, the extent to which the results of the analysis may be misleading. This is an area of uncertainty that is very likely to not favour Powerco, and it is not addressed by the Commission's list of "conservative assumptions".

*Operating and capital expenditure estimates*

27. Commissioner Rebstock has stated a view that the Commission's acceptance of the companies' opex and capex estimates is itself a conservative approach. This view presupposes that the companies' estimates are themselves "conservative" or biased in some manner. In fact, this is not the case. Powerco has responsibilities to its shareholders, and the capital markets more broadly, to present business projections on a true and fair basis.

28. The antidote to any concerns regarding the veracity of Powerco's forecasts is to base the Commission's analysis solely on actual returns rather than forecast. Powerco notes that other companies have tried to persuade the Commission that it should focus solely on forecast information, and ignore historic data. Powerco has not made any such claims. Powerco also notes Commissioner Rebstock's comments on day two of the conference:

> "So when we talk about the outcome in the future, we don't know, it's not what the forecast is, and it's not clear to me at all that a forecast tells me more about the future than the past and in fact I suspect if you look at most markets the best predictor of the future, at least for short timeframes, is going to be the past." (Comments from the Chair, transcript of hearing on 26 July 2004, page 176)

29. Powerco concurs with Commissioner Rebstock's comments that the future is uncertain. In fact, in the current commercial environment there is no guarantee that forecast revenues and costs will come to fruition. Mr Nigel Barbour has provided evidence to the Commission on the catastrophic risks of earthquake and the everyday concerns of retaining customers in the face of competition from LPG.

30. Despite these risk issues, Powerco's projections indicate an expectation of improved financial performance. However, these projections do not take explicit account of the inherent riskiness of running a gas distribution network, especially one where the long-term supply of gas is in doubt and where competition from fuel alternatives is a reality. Powerco does not believe that the Commission's theoretical model takes proper account of the commercial considerations. As an abstract from reality, the Commission's modelling of forecast revenues and costs is far from conservative.

*Restatement of the NAB using more appropriate parameters*

31. In summary, Powerco's view is that simply producing a "long list" of supposedly *conservative* assumptions does not demonstrate that the overall effect is conservative. Powerco does not believe that the Commission has appropriately quantified the asset-related costs, and this error is likely to swamp the impact of any other "conservative" assumptions. In terms of approach, Powerco would prefer the Commission to present a robust and comprehensive analysis, which fairly represents the business environment in which the company actually operates. In this regard, Powerco has revisited the Commission's NAB calculations to address particular errors.

32. The table below presents a re-calculation of the NAB to correct for six errors contained in the Commission's NAB calculations. (The NAB amount denoted below as "Commission Base Case" refers to the NAB amount calculated by the Commission and shown as the "mid point" NAB in paragraph 11.57 on page 11.9 of the Commission's draft report.)

| | **Excess Profits ($000 per annum)** | | **NAB ($000 per annum)** | |
|---|---|---|---|---|
| | **Change** | **Total** | **Change** | **Total** |
| **Commerce Commission Base Case** | **0** | **6,643** | **0** | **4,943** |
| **Adjustments to Commission's Base Case:** | | | | |
| 1. Correct for the inclusion of Interest Income | (252) | 6,392 | (210) | 4,733 |
| 2. Correct for interest tax shield | (2,432) | 4,211 | (2,021) | 2,922 |
| 3. Include Other Asset Depreciation | (137) | 6,506 | (118) | 4,825 |
| 4. Correct incorrect adjustments and include notional insurance in Operating Costs | (1,375) | 5,268 | (1,132) | 3,811 |
| 5. Correct historic years for revaluation assumptions | (1,896) | 4,747 | (1,598) | 3,345 |
| 6. Use Powerco asset base (historic years only) | 55 | 6,698 | 45 | 4,988 |
| **Correct amounts as adjusted** | **(6,037)** | **606** | **(5,115)** | **(172)** |

Note: There are some minor discrepancies between the re-calculated NAB and the Commission's Base Case NAB re-stated for the accumulated effect of the six adjustments listed above. These discrepancies total around 2% of the Commission's Base Case NAB and are therefore regarded as immaterial.

33. The table below provides a brief explanation of each of the six adjustments applied by Powerco to the Commission's calculation of NAB.

| Adjustment | Explanation |
|---|---|
| 1. Interest income | The Commission has incorrectly included interest income in gas revenues in its NAB calculation. This adjustment removes interest income from the gas business revenue for the purpose of estimating the NAB. |
| 2. Interest tax shield | In Powerco's view the interest tax shield must be deducted from net earnings in order to correctly calculate any excess earnings and NAB under its approach. Powerco reserves its position on tax issues pending the Commission's further consultation. |
| 3. Include other asset depreciation | The Commission appears to have not used depreciation data provided to it by Powerco, and therefore the Commission's calculation understates depreciation. This adjustment corrects this error. |
| 4. Operating costs | The Commission's assumptions about the nature and composition of these costs are incorrect and hence the modifications made by the Commission to Powerco's data are incorrect. This adjustment reinstates the correct operating cost data for the purpose of calculating the NAB. In addition, a notional insurance cost of approximately $2.1m has been added to the forecast periods to reflect actuarial estimate of the fair value of Powerco's self-insurance for catastrophic loss from events such as earthquakes. The Commission's existing analysis wrongly ignores this cost. |
| 5. Revaluation adjustments to historic periods | Revaluations of the asset base have not been undertaken in past years, so it is incorrect to treat past changes in the asset base value as revaluations. Powerco's calculations treat these changes as either depreciation adjustments or restatements. |
| 6. Use Powerco asset base (historic years) | As noted in relation to adjustment (5), the Commission appears to have made some modifications to the historic asset base value data submitted by Powerco. This adjustment (which has the effect of increasing the estimated NAB) corrects for this. |

34. In addition to these adjustments, Powerco is concerned that the Commission's model makes a number of implicit assumptions about the level of prices beyond the period under examination which may prove to be false. For example, competition may prevent Powerco from recovering the future revenue stream implicitly assumed in the Commission's analysis. In other words, the terminal asset value implicit in the Commission's analysis may not be supported by the Company's future cashflows. This is an important matter which needs to be properly explored and understood before the Commission can consider recommending control.

35. In any event, it is noted that after correcting for the six errors identified above, the NAB (at the Commission's proposed mid point WACC of 7.2%) falls from an assessed benefit of $4.9 million per annum to a cost

of $0.17 million per annum. In other words, Powerco's calculations show that there is no benefit from introducing control.

36. Furthermore, the net **costs** of control are likely to increase significantly if the Commission takes proper account of independent expert advice regarding:

    - the plausible upper bound of the WACC; and
    - the pitfalls of the Commission's application of an ODV-based asset valuation to determine an "allowed" or "normal" earnings stream at a point in time.

## Proposition (b): Asset prices greater than ODV imply monopoly rents

37. The Commission has expressed concern that acquisition prices that exceed ODV may reflect the capitalisation of monopoly rents. Powerco's strongly held view is that it has not capitalised monopoly rents. More importantly, Powerco believes that the Commission is mistaken in focusing to such a great extent on the relationship between asset prices and ODV.

38. It is important to recognise that the regulatory regime in which Powerco has been operating is inherently uncertain. Unlike other jurisdictions, New Zealand has benefited from an absence of formal price control regimes. However, the absence of formal regulation also introduces uncertainty regarding each company's maximum allowed revenue. Against this background, the purchase price for acquisition must involve a broad assessment of the cost savings and synergies that can be achieved – and the extent to which these should be shared with customers.

39. A very simple spreadsheet model would show that efficiency gains, synergies and other sources of benefit imply that a multiple of ODV is an appropriate purchase price, when regulated revenue forecasts are constrained to provide a fair and reasonable rate of return on assets valued at ODV.

40. If the Commission disallows shareholders from retaining value from acquisitions, then the incentive to seek value-enhancing acquisitions will be eliminated. This, in turn would destroy incentives for companies to seek further efficiency gains through merger and acquisition, resulting in underlying costs and consumer prices being higher than they would otherwise be. Such an outcome would be detrimental to customers, and would result in a loss of efficiency to the New Zealand economy as a whole. Powerco has assumed in its acquisition decisions that the Commission would not adopt the unusual position of preventing shareholders from retaining some of the benefit from cost-reducing measures.

41. Powerco notes that the new draft Government Policy Statement on Gas Governance ("**draft GPS**"), released on 8 July 2004, is also relevant to the issue of investment incentives. The draft GPS will replace the current Government Policy Statement: *Development of New Zealand's Gas Industry* dated March 2003. The draft GPS details the direction which the Government's overall policy objective for the gas industry is taking. It emphasises the importance that investment incentives are maintained or enhanced. It provides that the Government is seeking the specific outcome that (refer paragraph 5(d)):

> "Incentives for investment in gas processing facilities, transmission and distribution, energy efficiency and demand side management are maintained or enhanced."

42. The current 2003 GPS does not contain any reference regarding the importance that investment incentives be maintained or enhanced. This

new emphasis on incentives for investment in the draft GPS is carried over from the Electricity and Gas Industries Bill, which imposes the same obligation on the Energy Commission, if it is established. This new Government policy reinforces the need for the Commission to take into account fully the impact of control on incentives for investment. It is a factor relevant to whether control should be imposed. It is essential that the Commission take this into account as part of the existing regulatory framework (refer paragraph 1.44 of the Draft Report).

43. The Commission should also note that even where companies are regulated under a formal CPI-X control, it is possible to point to a large number of acquisitions that have taken place at multiples of the regulated asset base. This does not necessarily imply that the regulatory regime has failed. In fact, it is the prospect of returns above the regulated cost of capital that drives companies to seek efficiency improvements.

44. Powerco draws the Commission's attention to KPMG's submission to the Essential Services Commission in Victoria, which examined the prices paid for regulated network businesses, expressed as a multiple of the regulated asset base. KPMG[6] states:

> "We examined 24 transactions in gas and electricity since 1994, and found that the multiples of price relative to regulated asset value range from 0.8 (for the Moomba-Sydney Pipeline) to 2.7 (Energy Partnership's purchase of Multinet/IKON Energy in March 1999, with both mean and median converging around 2.0 (and the differential debt-equity financing mix does not seem to significantly affect this fact). All three transactions specific to Victorian gas distribution sector achieved a value-to-regulated asset multiple of over 2.0, while the latest transaction, the July 2002 purchase by CKI/HKE of CitiPower achieved a multiple of 1.7."

This evidence indicates that it is neither unusual nor unreasonable to observe transactions at multiples of the regulated asset base. For New Zealand companies, multiples of out-dated and inappropriate ODVs do not imply that monopoly rents are being capitalised.

45. Assuming that the ODVs are appropriately assessed, there are two important reasons that may lead to acquisition prices exceeding the ODV. These are that the acquiring company's actual tax and operating costs may be lower than reasonable benchmark allowances. Powerco recognises that there is a need to substantiate the proposition that regulatory allowances for such costs may exceed actual amounts. Each issue is therefore discussed in turn below.

*Benchmark vs actual tax*

46. At the Commerce Commission conference on its Gas Pipelines Inquiry Draft Report, the Chair of the Commission stated:

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[6] Australian Gas Association, *Submission to ESC, in response to the ESC's Draft Determination on its Review of the Revised Victorian Gas Distribution Access Arrangements*, August 2002, prepared by KPMG.

> "The Commission has requested further tax information from the businesses to ensure that the tax figures provided by those businesses and used in the cost-benefit analysis are the actual tax paid figures.
>
> The Commission's proposed approach to calculating any excess returns is based on using the actual tax paid. Affected parties will have an opportunity to review and comment on the Commission's treatment of the interest tax shield and the tax figures used in the cost-benefit analysis prior to the final report being provided to the Minister of Energy."

47. Powerco notes that the Commission is conducting a separate consultation exercise in relation to tax issues, and the company therefore reserves its position on these matters. In advance of the Commission's further consultation, however, Powerco submits that the Commission should adopt consistent assumptions on asset valuation and taxation. In making this observation, we note the Commission's concern regarding the importance of regulatory practice in other jurisdictions, as noted by the Chair:

> "I know I've put this to both of you before, but as a regulator when I look around the world and I see every other regulator in the world dealing with these same issues, I just don't see them picking them up, and yet they are being advised, as we are, and still stand back and ask myself, why is that? Why is it, when we look at what we decide and we look at what other regulators decide, we look like we have wider ranges and we settle on a higher part of the range and we generally -- and so, I just stand back from it and I say, if these things are so obvious and so straightforward, why does this Commission not seem to be more out of line, or out of line at all, or out of line in a different direction than what we tend to seem to be out of line with, which we seem to be more conservative, I would suggest, in favour of companies than other regulators. So, I'm always puzzled by this, and as academics -- I mean, you must see this, you look at what happens in other jurisdictions as well, and I just don't see some of these points being picked up, and I'm just curious about your thoughts on that." (Comments from the Chair, transcript of hearing on 22 July 2004, pages 124 and 125)

48. Powerco submits that the approach of the Victorian Essential Services Commission (ESC) and its predecessor, the Office of the Regulator-General (ORG) provides sound guidance as to how the issue of taxation should be dealt with in a regulatory context.

49. In particular, the ESC adopts a "benchmark" approach to assess an appropriate allowance for tax costs. The rationale for its approach is set out in its most recent price cap determination as follows:

> "The Commission has confirmed its view in the Draft Decision that the allowance for company taxation should reflect an unbiased forecast of the taxation liabilities for an efficient company. It has also confirmed the view expressed in its earlier consultation papers and in the Draft Decision that the most appropriate means of deriving the allowance for company taxation is to make an explicit calculation of taxation liabilities, based on a transparent set of tax-related assumptions…
>
> The Commission has adopted in this Final Decision simplifying assumptions for many of the tax-related inputs. Most of these

> assumptions are required for the assessment of [allowed] reference tariffs regardless of how the taxation allowance is derived – these being: assessable revenue; operating expenditure; capital expenditure and interest deduction. For the only other inputs required – tax depreciation – while the Commission has been informed by the distributors' proposals and statements as to their actual taxation practices, the Commission has adopted its own industry-wide benchmark assumptions for many of the inputs, on the basis of its own independent professional tax advice." [7]

In other documents, the ESC has noted the "potential incentive problems that may occur if the assumptions used to calculate the tax costs reflected too closely the actual decisions of the distributors."[8]

50. A critical issue for the Commission's present Gas Pipelines Inquiry is the assumption to be made regarding the valuation of assets for tax depreciation purposes. (All else held constant, a higher asset value for tax purposes results in a higher depreciation tax deduction and a lower assessable income.) The experience in the Victorian electricity distribution sector provides useful guidance in relation to this issue.

51. In Victoria, assets were sold by the Government to private investors who paid prices that were considerably in excess of the "regulatory asset value" that the regulator was, and is still required by statute to apply in price cap determinations. During the first review of electricity distribution price caps, the regulator (then the ORG) carefully considered the question of asset valuation for the purpose of estimating allowable depreciation deductions (and hence the tax cost allowance to be provided in the price cap decision). The ORG adopted a "benchmark" approach to estimating tax cost allowances (identical to that it adopted in its more recent gas decision, described above).

52. In considering the question of asset valuation, the ORG adopted the regulatory asset value as the relevant value. Significantly, in reaching its decision, the ORG stated:

> "The ORG understands that distributors could write-off the whole purchase price of the assets for tax purposes, and that the purchase price significantly exceeded the regulatory asset base for those businesses. However, the ORG has not proposed to use the purchase price as this would be inconsistent with the benchmarks adopted elsewhere in determining benchmark revenue requirements."[9]

53. The Commission is well aware that Powerco acquired its gas distribution assets at prices in excess of the "regulatory asset value" (i.e. ODV). In these circumstances, inclusion by the Commission of the company's actual tax in the measurement of excess profit would reflect an assumption that all of the tax deductions available to the company as a

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7 Essential Services Commission, *Review of Gas Access Arrangements: Final Decision*, October 2002, page 143.

8 Office of the Regulator-General, *Electricity Distribution Price Determination, 2001-05, Volume I - Statement of Purpose and Reasons*, September 2000, page 305.

9 Office of the Regulator-General, *2001 Electricity Distribution Price Review Issues Paper: February 2000,* page 94.

result of paying a premium above ODV to acquire the assets should be transferred immediately to consumers.

54. Notwithstanding the chilling effect that such action would have on dynamic efficiency (by destroying incentives for efficiency gains through merger and acquisition), the definition of income implicit in such an approach is inconsistent with the definition of the regulatory asset base (ODV) that the Commission proposes to apply. As demonstrated clearly by the Victorian ESC, the allowance for taxation costs should be consistent with the deductions that would be available to a business with a depreciable asset base valued at the level assumed in the calculation of allowable income (in this case, ODV).

*Benchmark vs actual opex*

55. The Commission proposes to use the company's own operating costs (actual and forecast) in deriving an estimate of excess returns. By focusing on the company's own costs, the Commission's approach to assessing the need for control takes no account of the legitimacy, in effective incentive-based regulatory regimes, of providing the company with an incentive to increase shareholder value by pursuing efficiency improvements.

56. Moreover, it is arguable that where the Commission adopts the company's actual costs in the ex-post assessment of allowable revenues, the Commission ignores the value of efficiency gains that the company may have achieved relative to a benchmark level of costs. Such an approach has the effect of immediately transferring to the acquirers the value associated with all of the efficiency gains achieved by the company in the past.

57. As noted elsewhere in this submission, the owners of a company may have acquired it on the (reasonable) assumption that shareholders will benefit from these efficiency gains. In such cases, the application of the Commission's approach results in the retrospective transfer, from the shareholders to acquirers, of the value created by the company's managers through the achievement of efficiency gains (which the shareholders had reasonably expected to receive, and which have been capitalised in to the price of the assets). Such an outcome has very negative effects on incentives for future efficiency improvement, because it signals to investors and managers that any gains made may be transferred immediately or retrospectively to acquirers.

58. In other regulatory regimes, the legitimacy of providing regulated companies with an incentive and opportunity to increase shareholder value through efficiency improvement is explicitly recognised. For instance, Sections 8.44 to 8.46 of the Australian National Gas Code provide for the use of "incentive mechanisms". Section 8.44 states that regulatory arrangements should contain an "incentive mechanism" that permits the regulated company to retain all, or any share of, any returns to the company from the sale of the regulated services that exceed the regulatory cost of capital, particularly where the regulator is of the view that the additional returns are attributable (at least in part), to the efforts

of the company. The Code goes on to state that such additional returns may result, amongst other things, from lower costs or greater sales of services than forecast.

59. In incentive-based regulatory regimes that rely on a "building block" approach to determining allowed revenues (in much the same way as the Commission's approach to assessing excess returns uses an estimate of allowed revenues) regulators typically use estimates of "benchmark" costs, rather than the company's own costs. This is illustrated in the following excerpt from the Victorian Office of the Regulator-General's Electricity Distribution Price Determination for 2001-05:

> "The ORG has established forward-looking benchmarks for capital and operating expenditure for each distributor for the 2001-05 price control period. These benchmarks represent the ORG's high level estimate of the expenditure required to meet efficiently the distributors' service targets and other obligations over the next regulatory period. They are used to establish a view regarding the total revenue required, which in turn is used to establish the price caps or 'X' factors for each distributor.
>
> Importantly, these benchmarks do not represent amounts that the distributors are required to spend, or to direct to particular activities. They are free to determine their own expenditure priorities in the light of emerging market and commercial circumstances and to pursue innovations and efficiencies that enable them to outperform the revenue benchmarks and service targets. The incentive-based price cap approach used in this determination means that the distributors will retain, without any retrospective adjustment, the benefits of any gains made by spending less than the amounts estimated by these benchmarks. In addition, these benchmarks provide a reference point to measure any such gains and to determine the amount that may be retained by the distributors during the 2006-10 regulatory period as an incentive payment."

60. As noted elsewhere in this submission, Powerco acquired the gas distribution networks on the (reasonable) assumption that efficiency gains flowing from its acquisition would be retained by shareholders, while acquirers would continue to receive services at a price level consistent with that which prevailed immediately prior to the acquisition.

61. The Commission's proposed use of the company's actual costs – which incorporate the savings and efficiency gains achieved as a result of Powerco's acquisition – is fundamentally inimical to the principles underpinning effective incentive regulation. As already noted, the Commission's proposed approach presents a significant threat to incentives for efficiency improvement.

62. In summary, if the Commission adopted an incentive-based approach to regulation it would (reasonably) expect that acquisition prices would exceed ODV. Powerco is very concerned that the Commission is not considering an incentive-based arrangement, and therefore control would create even greater costs and efficiency losses on customers and the industry. It is essential for the Commission to examine regulatory arrangements overseas in order to adopt an appropriate treatment of tax and operating costs.

## Proposition (c): Price control can be imposed without significantly increasing the costs of regulation or adversely affecting dynamic efficiency

63. It is apparent from some of the Commission's questions and comments during the conference that the Commission has under-estimated the implications of imposing a formal price control regime on the gas network businesses. In particular, Commissioner Rebstock commented:

> "This is always an interesting conversation we have when we look at the costs of control, and we've done a number -- a few of these studies, and traditionally discounted the benefits by 20% in order to build in a serious allowance for the cost of control and, for example, a wide range of things." (Comments from the Chair, transcript of hearing on 22 July 2004, page 35.)

In other words, the Commission's allowance for the costs of regulation is assumed to be a proportion of the total benefits, which presupposes that regulatory costs can almost be dealt with "in the rounding". This view is not widely held amongst practitioners.

64. The Commission will be aware that price control has been applied to gas network businesses in Australia since the mid 1990s, and that the Australian Productivity Commission (PC) has recently completed a comprehensive review of those regulatory arrangements. Whilst the PC has identified a number of problems that are specific to the Australian regime, the review has also identified a number of important limitations and problems associated with price control regimes that are directly relevant to the Commission's present Gas Pipelines Inquiry.

65. The PC's final report was published on 10 August of this year. We submit that the PC's final report provides a valuable source of information to the Commission, as it was prepared by an independent agency that has recognised the vested interests of all parties to the debate about the costs and benefits of price control in Australia.

66. In short, the PC's review found that in Australia:

- Quantifying the benefits and costs of the price control regime is extremely difficult, particularly in the absence of information about what would have occurred without the regime (the counterfactual). Nonetheless, the PC concluded that there are problems with the current regime, mainly arising from the considerable costs it imposes and its real potential to distort investment and inhibit innovation.
- Under the present regulatory regime, there is too great an emphasis on price control.
- Regulators and regulated companies can incur large costs in the collation and analysis of the information on which price control decisions are based. The 'building block' cost methodology used to determine price caps is costly and intrusive, and its meticulous use provides a false sense of precision about regulatory decision-making.

- Price cap determinations have a high potential for regulatory error because of the complex issues involved in determining a price cap, and because of uncertainty about the values of various parameters a regulator might apply in approving tariffs (such as the weighted average cost of capital) and uncertainty about future decisions that could lead to redundant capital. This, in turn has created distortions to investment, and has likely constrained the scope for regulated companies to deliver and price their services efficiently, and to make innovative service offerings.
- A move towards a formal monitoring regime would provide a way of avoiding the potentially high costs of price control regulation. Under the approach proposed by the PC, some companies would be exempt from price regulation in situations where the case to apply price regulation is not strong, but there is still perceived to be a need for some regulation.

67. A more complete excerpt from the Overview of the PC's final report is provided as Appendix 2.

68. Set out below is an excerpt (titled "Box 8.1") from Chapter 8 of the PC's final report, which summarises the PC's findings on the costs associated with the price cap form of regulation that presently applies to the Australian gas distribution and transmission sectors. (Note that the references are to the various chapters of the PC's final report.)

**Box 8.1 Costs of the current Gas Access Regime**

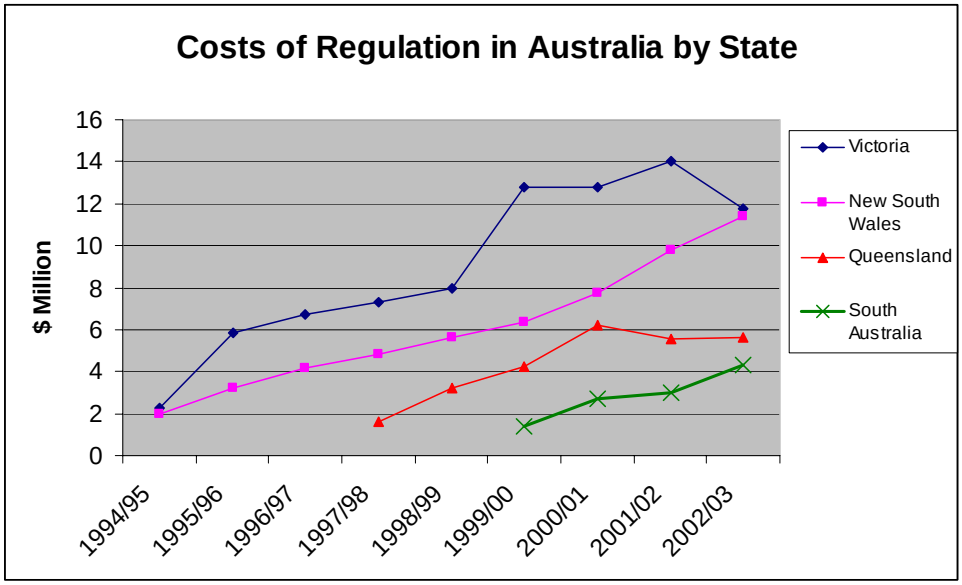
In other chapters of this report, the Commission found that the Gas Access Regime's regulatory approach of access arrangements with reference tariffs can be costly. The regime's costs are attributable to a range of factors, including:

- high compliance costs in the preparation of access arrangements (chapters 4 and 7)
- constraints on commercial negotiations (chapter 3)
- the high potential for regulatory error (chapters 4 and 7)
- high regulatory risk (chapters 4 and 7)
- the potential to distort or deter investment (chapter 4)
- changing the role of foundation customers through the inclusion of 'most favoured nation' clauses (chapter 4)
- difficulty in implementing in increasingly competitive markets (chapters 2 and 4)
- the benefit of intervening decreases as competition increases (chapter 4)
- limited guidance from economics about pricing in imperfectly competitive markets (chapter 4)
- regulatory gaming and lobbying (chapter 4)
- time delays (chapters 4 and 11)
- difficulty in applying regulation objectively (chapter 4)
- incentive for regulators to overregulate (chapters 4 and 7).

Source: Productivity Commission 2004, *Review of the Gas Access Regime*, Report no. 31, Canberra, page 332.

69. The independent analysis undertaken by the Australian Productivity Commission highlights the potentially very high direct and indirect costs associated with price control.

70. A review of the operating budgets of a sample of Australian State-based regulators also provides a clear illustration of the tendency for direct costs associated with the administration of price cap style regulation to blow-out over time. The diagram below shows the costs incurred by four Australian regulators over the last decade.




Source: Annual reports of the Office of the Regulator-General, Victoria, Essential Services Commission, Victoria, Independent Pricing and Regulatory Tribunal of NSW, South Australian Independent Industry Regulator, Essential Services Commission of South Australia, Queensland Competition Authority

71. Based on the data shown in the diagram above, the table below shows the average annual percentage increase in the cost of the regulatory function in these four Australian States.

| State | Year of establishment of regulatory function | Average annual % increase in direct cost of regulatory function |
|---|---|---|
| Victoria | 1994/95 | 23% |
| New South Wales | 1995/95 | 24% |
| South Australia | 1997/98 | 28% |
| Queensland | 1999/00 | 46% |

72. The independent analyses and findings of the Australian Productivity Commission on the effectiveness of price control regulation in that country strongly indicate the need for the Commission's assessment of the NAB to take full account of the potential (direct and indirect) costs of price control regulation. The substantial and sustained increases in the costs of administering price control regimes in Australia over the past decade or so suggest that it is very easy to underestimate the direct costs of such regulation. Powerco considers that the Commission's analysis of NAB substantially understates the direct and indirect costs of price control, and in so doing, presents an unduly optimistic estimate of the NAB.

## Comments made by Nova Gas Limited

73. Powerco notes that in the course of its submissions and its presentation at the conference, Nova Gas Limited made a number of potentially detrimental statements regarding Powerco's pricing, competitive response, and other aspects of Powerco's commercial activities.

74. The Commission has not put these statements to Powerco and as a result Powerco assumes that the Commission does not intend to rely on them in the course of its decision.

75. Powerco considers that Nova Gas' statements are irrelevant, inaccurate, and misleading. It does not, however, wish to waste the Commission's time with a line by line rebuttal if it is not necessary for it to do so.

76. If, contrary to Powerco's assumption, the Commission does intend to rely on any of the statements made by Nova Gas, then Powerco is entitled to the Commission's advice on what particular aspects the Commission considers pertinent. Powerco can then respond to the allegations made against it.

## Overall conclusions

77. In this cross-submission, Powerco has responded to three propositions which the Commission and its experts explored during the conference. These propositions are:

    (a) The Commission has adopted a "conservative approach" in undertaking its net acquirer benefit (NAB) test. On this basis, the Commission believes that its NAB assessment is likely to under-estimate the benefits of control.

    (b) The Commission has expressed concern that asset acquisition prices that exceed ODV may reflect the capitalisation of monopoly rents.

    (c) The Commission believes that price control can be imposed without significantly increasing the costs of regulation or adversely affecting dynamic efficiency.

78. In Powerco's view, each of these propositions is open to strong challenge, drawing particularly on good regulatory practice overseas. It is important that regulation in New Zealand is not out-of-step with the lessons learnt in regulating gas network businesses elsewhere. The recent comments by the Productivity Commission adds further weight to Powerco's view that the Commission is mistaken in its assessment of competitive pressures and in under-estimating the costs of regulation.

79. Whilst the Commission claims that it has adopted a conservative approach in assessing the NAB, Powerco has carefully re-examined the parameters used by the Commission. In particular, Powerco has corrected for errors in the Commission's assessment of the NAB, and found that there would be a net cost of $0.17m per annum if control were imposed. Moreover, even this figure is likely to understate the net costs

of imposing control. Specifically, Powerco's assessment of the NAB has not made any adjustment for the following matters:

- The ODV asset value used to determine allowed asset-related costs is not fit for the purpose of determining a price control.

- The use of the ODV and the calculation of the NAB in the manner undertaken by the Commission provide a snap shot only at a point in time in the life-cycle of a long-lived asset base. This snap-shot does not provide a valid basis for assessing whether prices and revenue requirements at this time include excess returns.

- The plausible range of the WACC extends at the upper bound to well over 11%. Adopting a WACC value towards the upper end of the plausible range would substantially reduce the NAB, with all other assumptions held constant.

Correcting for these issues would demonstrate that imposing control would produce a substantially increased net cost to acquirers. The loss to the New Zealand economy, assessed by a net public benefit test, would be even more substantial.

80. In addition to these important matters, experience in Australia suggests that the Commission's estimate of the NAB substantially understates the direct and indirect costs of price control regulation. Powerco urges the Commission to adopt a more realistic set of assumptions about the potential total costs of price control.

81. In summary, under a range of credible scenarios regarding the WACC and total costs of regulation, the NAB of subjecting Powerco to price control would likely be substantially negative. The case for application of price control to Powerco has not been established by the Commission.

## Appendix 1:
## Further advice on the WACC received from Professor Jerry Bowman

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**Market risk premium**

In my submission in response to the Commission's Draft Decision, I noted that in a report to the ACCC, Associate Professor Lally had estimated that the Market Risk Premium for Australia should be 6%. Assuming the conversion of a MRP based upon the CAPM to a TAMRP based upon the tax adjusted CAPM requires an addition of 2%, his position in Australia equates to an estimate of TAMRP for New Zealand of 8%.

In his questioning after my presentation to the Commission (beginning at p 100, line 28), Associate Professor Lally notes that Australia uses the Officer version of the CAPM, and that it is not the same as the standard CAPM. Thus he says I am comparing apples with oranges. I asked what he regarded as an appropriate transformation to get to the TAMRP for New Zealand.

I won't repeat his answer as it is in the transcript, but after some assumptions and calculations, he reckons that his estimate in Australia converts to a TAMRP for Australia of 6.4%. He then notes that he is therefore doing what I suggested by using an estimate of 7% for New Zealand which is higher than in Australia. That almost sounded like a concession to my contention that the MRP in New Zealand should be higher than the comparably measured MRP in Australia.

I noted (beginning at p 101, line 30) that he was making a key assumption that the utilisation rate for dividend imputation credits is one. As I mentioned in my verbal reply to Associate Professor Lally the appropriate value of the utilisation rate will depend upon who are the price setting investors in Australia and/or New Zealand. In my opinion this will be international investors. Tax regulations in Australia are such that dividend imputation credits are likely to have no value to investors who are not Australian resident tax payers. In that case, the appropriate value for the utilisation rate is zero.

If the utilisation rate (or gamma) is zero, then the Officer version of the CAPM reduces to the standard CAPM, and my use of a 2% conversion rate from Australia to the TAMRP in New Zealand is appropriate. My position that Associate Professor Lally's estimate of 6% MRP in Australia is equivalent to TAMRP in New Zealand of 8% is valid.

Regulators in Australia assume that the value of the imputation credits is 50% of the face value (in the terminology used in Australia, gamma = 0.5). Using that value in Associate Professor Lally's computations gives a TAMRP for Australia of 7.2%. However, it seems clear to most people that the true value of imputation credits is not 0.5. The problem is that once that value has been adopted by regulators, they need to be very confident before they jump off the fence in the direction of a value of zero or in the direction of a value of one. A value of one implies that the price setting investors in Australia are domestic investors, whilst a value of zero implies that the price setting investors are international investors. In my view, the value should be zero. Therefore, the contradiction between Associate Professor Lally's market risk premium positions in New Zealand and Australia stands.

**Market risk premium – NZ v S&P500**

In my discussion of an appropriate MRP for New Zealand, I make an estimate that if the NZSE was listed on the US stock market it would have a beta in the range of 1.25 to 1.5. Associate Professor Lally queried that estimate in his questioning (beginning p 102, line 27 of the transcript). I stated that my estimate was my judgement, not the result of empirical analysis. He cited an empirical estimate that he had made using data from 1980 to 2000 that a regression of the "New Zealand market return on the US" gave a beta of 0.57.

I have now done some analysis. I obtained data on the S&P500 and the NZSE for 1982 through 2002, so it covers a period very similar to the period cited by Associate Professor Lally. A difficulty with the early years of this data is that it is a period when New Zealand was not an open economy. Then there is the crash of October 1987, as well as what has been called a "bubble" in equity prices in the mid-1980's. My preference is to focus on data in the period 1988 to 2002, although none of my conclusions are altered appreciably if earlier years are used.

When the NZSE data is regressed on the S&P500, the beta in my calculations is 0.48. This is consistent with Associate Professor Lally's estimate. Using his interpretation of this data, it indicates that New Zealand would be considered very low risk in the context of the S&P500. If this were accepted as relevant to the estimation of the MRP in New Zealand, it would indicate that the NZ MRP would only be about half the MRP of the US. In my reply to Associate Professor Lally I remarked that I would find that astounding. It was equivalent to saying an equity investment in New Zealand was vastly safer than most equity investments in the US and was akin to an investment in a major US utility company.

I do not directly disagree with that interpretation, but I believe a deeper look is appropriate when data is analysed this way. Data analysis can sometimes give misleading impressions if it is not done carefully and understood in an appropriate perspective.

During the hearing, I asked Associate Professor Lally what the R-squared was for his regressions. That is, what was the explanatory power of the regression. He did not recall, which is fair enough. In my analysis, the R-squared was 0.15, which is a reasonable level for interpreting the data.

Additional information on the data includes that the variance (volatility) of the NZ market was 56% higher than that of the S&P500. This is consistent with substantially more risk in New Zealand, although it does not directly translate into systematic risk. I do note in passing that both LECG and myself questioned the sufficiency of looking only at systematic risk in assessing an appropriate return for gas transmission companies. The same can be said of an analysis of the NZSE and the S&P500.

The most interesting aspect of the data is the result if the question is reversed. What would the beta of the S&P500 be if it were listed on the NZSE? Now this is truly a hypothetical question because of the relative sizes of the two. However, as we are merely looking for relationships between the returns series on the two markets, it is no more hypothetical than the reverse comparison.

As I mentioned above, and as asserted by Associate Professor Lally, a low beta for the NZSE on the S&P500 can be inferred to mean that the appropriate return for New Zealand should be substantially less than for the US. If this was the case then we should

expect that the reverse regression would indicate that the S&P500, if listed on the NZSE, would have a high beta, consistent with a higher expected return. However, that is not what is observed in the data.

When the returns to the S&P500 are regressed on the returns for the NZSE the beta for the US is only 0.31. If we continue to interpret this regression result as above, it indicates that the return premium (above the risk free rate) to the S&P500 is less than one-third of that of the NZSE. Put another way, the NZSE should have an equity risk premium over three times that of the S&P500! Clearly both of these interpretations cannot be true.

There is something wrong with looking at the data in this way. If it is put in one perspective, New Zealand looks substantially lower risk and hence lower expected return. But if the perspective is reversed, New Zealand looks very high risk relative to the US. In my opinion, this simply illustrates that this sort of analysis has substantial limits.

I suggest that the main statistic that should be noted from the above data is that the NZSE had much higher volatility than the US. I think it is further useful to think of the riskiness of the NZSE in comparison to types of companies in the US. I do not believe it is credible to assess the risk (and hence expected return) of the NZSE as lower than the risk of major US utilities.[10] In fact, of 100 industries included in Damodaran's dataset, the only industry with an equity beta less than the 0.48 which my calculation gave for the NZSE was precious metals (at 0.41).

In the questioning I asked Associate Professor Lally if felt that his estimate of 0.57 was a reasonable estimate (beginning at p 105, line 7). He responded with an intuitive explanation - "The New Zealand market is not perfectly correlated with the US, and it's a small part of the world; you put those two facts together and you would expect the small markets to produce lower betas…." The difficulty with this intuition is that the same can be said of any company in the world or of virtually any industry in any country. Yet it must be true that the average of betas equals one. If there are some betas lower than one, there must be betas greater than one. I see no reason to expect that New Zealand would end up with a beta lower than one. On the contrary, my intuition is that it is a small economy that is very vulnerable to movements in the major economies and hence would have a high beta. The oft-heard expression – "If the US sneezes, New Zealand catches a cold" – has exactly that connotation.

Having conducted the analysis above and given it more thought, it remains my opinion that the NZSE is comparable in risk to companies in the US with equity betas in the 1.25 to 1.5 range. If I were to now revise my estimate, it would be to increase the high side of the range.

**Maturity of the risk free rate**

During the questions and discussion that followed the presentations of Professors van Zijl and Boyle, the issue of the maturity of the risk free rate was addressed. Basically the position of Associate Professor Lally and adopted by the Commission is that the maturity should be set at the regulatory period. LECG supports using the traditional approach, which is well established as setting the maturity as the average life of the asset used by the company. After the exchanges between Associate Professor Lally and Professors van

[10] In the well known dataset maintained by Professor A. Damodaran and cited in the hearing by Associate Professor Lally and LECG, the utilities industries (electrical, natural gas distribution and water) have equity betas in the 0.6 to 0.8 range

Zijl and Boyle, which merely entrenched their divergent views, Ms Begg posed questions (beginning at p 141, line 26 of the transcript), which to my mind, bring an appropriate perspective to this issue.

As I discussed in my earlier report (Powerco's Submission to Commerce Commission on Gas Control Inquiry Draft Framework Paper (dated August 2003), Schedule A: Weighted Average Cost of Capital), there are two important risks that a company must consider in structuring its debt financing – interest rate risk and re-contracting risk. In my opinion, Associate Professor Lally focuses exclusively on interest rate risk, while LECG focus exclusively on re-contracting risk (and traditional positions on the issue). Thus, both positions are incomplete.

Because what is to be estimated is the yield on the company's debt, the first step should be to determine how a prudent and efficient company would structure its debt. Only then can we properly address the issue of the risk free rate.

In structuring its debt financing, a company should consider both of these risks – re-contracting risk and interest rate risk. The most direct approach is to hedge its re-contracting risk by borrowing long-term, consistent with the life of its productive assets. This is the LECG position. However, as Associate Professor Lally points out (see for example, p 132, lines 24-30 of the transcript), this exposes the company to interest rate risk. However the prudent solution is not to change the maturity of the company's debt. The interest rate risk can be hedged by creating interest rate resets at intervals that reflect the sensitivity of the net revenues of the company to changes in interest rates.

I discuss this in my earlier report and will not dwell on the mechanics here. However, I do ask the Commission to note that the actual financing practice of NGC is consistent with this two-part approach. Ms Begg identifies the practice of NGC (transcript p 142, lines 12-21) as using swaps to adjust its interest rate exposure.

Prudent debt financing for companies should first set maturities consistent with the lives of its assets to avoid exposure to re-contracting risk. Then they should structure interest rate resets that reflect the sensitivity of their net revenues to changes in interest rates.

Gas transmission assets are very long-lived assets, which would indicate the companies should have debt with very long maturities. However, the companies do not borrow with 60-80 year maturities as that term is not available in New Zealand or even internationally. Therefore, debt maturities are generally about ten years. It should be noted that this maturity is a result of imperfections in debt markets rather than preferred maturity choosing by managements.

In determining the appropriate risk free rate to use in determining the cost of debt, both risk reducing actions should be considered. Ideally, the Commission should first determine the interest rate appropriate for very long maturity debt. Then it should adjust the long-term interest rate to reflect all of the transactions costs[11] that would be prudently incurred by a company in adjusting its interest rate resets.

An alternative approach for a company provides a perspective that relates to the Commission's position in its Draft Decision. A company could issue debt with a 3-year

[11] The costs involved in these interest rate resets are separate and in addition to debt issuance costs. The debt issuance costs are the costs incurred in the issuance of the original debt of long-term maturity.

maturity and then hedge its re-contracting risk by entering into a contract with a lender to guarantee it access to funding at each of the 20 or more remaining three-year intervals for three-year maturity borrowing and on the same credit terms and conditions, adjustable only for changes in the base interest rate. I am not aware that such an approach is available to companies, but it is clear that such an arrangement would have a substantial cost. The cost would have to be added to the 3-year risk free rate.

It is absolutely clear is that using the yield on short-term (3-year) government bonds to estimate the risk free rate will under estimate the appropriate rate because it ignores the cost of hedging re-contracting risk.

I have not undertaken a study of the costs of the transactions costs under either of the two scenarios above. However, after discussions with a number of investment bankers who specialise in these sorts of transactions, it is my view that the total cost of these transactions based upon a 60 to 80 year maturity would result in an effective interest rate well in excess of the yield on short-term government bonds.

Therefore, until further study is possible, I recommend that the risk free rate for estimating the cost of debt capital be estimated as the yield on 10-year government bonds. This is admittedly only a proxy for the correct risk free rate to use in estimating the cost of debt for a company. However, in my view it will tend to result in an under-estimation of the true cost of debt for gas transmission companies.

**Comparisons with regulators in other countries**

In a discussion with Professor van Zijl (beginning p 124, line 19), the Chair made some observations about the positions taken by the Commission on WACC issues and those of other regulators around the world. She stated that "we seem to be more conservative, I would suggest, in favour of companies than other regulators."

An analysis of this contention would be a substantial undertaking, which might be worthy of the effort. I would like to make two simple observations relevant to the contention.

Interest rates in New Zealand are the highest in the developed world and have been so for many years. A higher risk free rate leads directly to a higher WACC. Also, in my view if not the Commission's, equity investments in New Zealand are more risky than equity investments in almost all other countries that might be used for comparisons of regulatory outcomes. The higher risk should translate to a higher market risk premium, which should then lead to a higher WACC.

These two simple points indicate that WACCs in New Zealand should be higher than in other countries. Higher WACCs do not demonstrate conservatism or outcomes that are favourable to companies.

## Previous work on WACC

During my appearance at the conference, Commissioner Rebstock asked how my evidence to the Commission compared with advice I have previously given to regulators. In particular, I have previously advised the National Competition Council in Australia on an application from the Northern Territories Government to certify a regime for access to the electricity networks.

I have now reviewed that advice and note that it did not have any specific WACC parameter values or ranges in it. Therefore, it is not directly comparable to my evidence presented to the Commission. My report is available on the NCC's webpage at:

http://www.ncc.gov.au/publication.asp?publicationID=85&activityID=31

**Appendix 2: Excerpt from the Overview of the Australian Productivity Commission's Final Report on its Review of the Gas Access Regime, pages xxvii to xxxvii**

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### *What are the problems with the current regime?*

"Quantifying the benefits and costs of the regime is extremely difficult, particularly in the absence of information about what would have occurred without the regime (the counterfactual)…

The Commission has not attempted to undertake a formal cost–benefit analysis of the impact of the Gas Access Regime using models, such as general equilibrium models. The uncertainties about relevant (access regime specific) data (including variations across jurisdictions and across end-users), behavioural relationships and counterfactual scenarios to be input into such models, would cast considerable doubt about the conclusions which could reasonably be drawn from such modelling. Further, such modelling would bring little clarity to deciding on whether and how to improve the existing regime.

Based on the Commission's assessment (of both costs and benefits), including taking into account input from interested parties, it is reasonable to conclude that there are problems with the current regime. These mainly arise from the considerable costs the regime imposes and its real potential to distort investment and inhibit innovation.

The characteristics of the current regime that lead to these high costs are briefly outlined below.

**Too great a focus on price regulation**

…Although the Gas Access Regime appears to be based on a negotiate–arbitrate framework, third party access prices, in effect, are determined using cost-based price regulation. This outcome arises because of the fundamental role attached to reference tariffs in the event of a dispute over access to a reference service and the way in which tariffs for reference services must be determined under the regime…

…The outcome has been that third party access is essentially based on the regulator approved cost-based reference tariffs. There is a high degree of risk that the price set by the regulator is no more efficient than that which would have prevailed in the absence of price regulation, particularly given the other deficiencies in the regulation discussed below. There is a prospect that the regulation of prices is leading to a distortion in investment (towards lower risk projects) and delaying the development of new pipelines, which then slows down the emergence of competition in related energy markets and between pipelines…

**High information and research costs**

Regulators seek a large amount of detailed information from service providers and users. They also commission or undertake a substantial amount of research. In this way, service providers and regulators can incur large costs. Principally, regulators require the information to satisfy themselves that they have discharged their responsibilities in relation to approving and determining reference tariffs, in accordance with the flexible and highly discretionary framework set out in the regime. The outcome is the intrusive and meticulous use of the 'building block' cost method and incentive regulation framework to set reference tariffs with a false sense of precision.

**Impact of the regime on investment**

Service providers argued that the Gas Access Regime distorts pipeline investment. On the other hand, a number of users and regulators provided data on the substantial investment in pipelines since the inception of the regime.

It is difficult to draw conclusions from the information provided by inquiry participants because the 'no regulation' scenario is unobservable. Projects that did not proceed might not have been viable in any event. On the other hand, observing actual investment does not prove that investment has not been distorted. For example, growing gas demand probably would have led to some investment taking place in any event.

In addition, the impact on investment of other reforms to the gas sector and additional factors, such as the discovery of new gas fields, cannot be easily separated from those of the regime.

In light of the above, the Commission considers that an assessment of the effects of the regime on investment must include not only the possible positive effects on investment, but also an examination of the likelihood of cost-based price regulation being applied to pipelines with little or no market power, regulatory error occurring in approving and determining cost-based regulated prices, and the existence of regulatory risk from uncertainty about how regulation might be applied.

As noted previously, gas pipelines have natural monopoly characteristics but, in some circumstances, the potential to exercise market power might be constrained. Thus, for some pipelines, the benefits of relying on cost-based regulated prices as the principal instrument for achieving the benefits arising from third party access might be small and difficult to realise in practice. The Commission considers that this is a possibility under the regime because the current coverage test sets too low a threshold for cost-based price regulation.

The Commission also considers that there is a potential for *regulatory error* under the regime due to the complex issues involved in determining a reference tariff, including the need to make a subjective judgment about the risk faced by a service provider. Where regulatory errors do occur under the regime, there is a possibility that they reduce expected returns for riskier projects below those necessary for efficient investment. For example, the expected rate of return allowed by regulators has been based on the precedents set for established, possibly lower risk, pipelines. In addition, recent appeal decisions suggest that regulators err towards imposing lower returns.

The Commission considers that *regulatory risk* can be high under the regime due to the fact that a new pipeline might be covered at some future time. There is also uncertainty about the values of various parameters a regulator might apply in approving reference tariffs (such as the weighted average cost of capital) and uncertainty about future decisions that could lead to redundant capital. Evidence of asymmetric truncation (capping high profits) is not as clear cut, due to the limited number of access arrangement reviews to date. Nevertheless, the Commission considers that investors will anticipate asymmetric truncation under the Gas Access Regime, particularly for riskier projects, because of:

- the difficulty regulators have in distinguishing between higher returns on risky projects and monopoly returns, after the investment has been made
- the incentives regulators can face to reduce any high profits observed after the investment has been made.

The Commission considers that the Gas Access Regime is likely to distort investment in favour of lower risk projects. This could result in a greater reliance than otherwise on building capacity that is essentially fully contracted, expanding capacity incrementally and delaying pipeline construction until forecast demand is more certain.

### *What changes are required?*

…The Commission recommends that [among other things] service providers be able to apply methods other than the 'building block' approach to design reference tariffs, provided they are consistent with the objects clause and pricing principles... The recommended modifications of guidelines for access arrangements are designed to maintain the benefits of, and reduce the economic costs associated with, the application of price regulation.

**Include a monitoring option**

The Commission considers that the existing regime leads to the application of cost-based price regulation (through the application of reference tariffs) in situations where it is doubtful that it maximises net benefits to the economy, after taking into account the economic costs of regulation.

The Commission appreciates that the gas market is in transition and there is still uncertainty about the potential for competition in many areas. However, looking forward, the gas market is likely to become increasingly dynamic as interconnectivity increases, basin on basin competition develops and gas producers and users respond to the commercial opportunities generated by these changes.

In this situation, the Commission considers there is merit in introducing a monitoring option to be applied to those covered pipelines that meet certain requirements. The features of the monitoring option would include:

- a service provider prescribed third party access policy
- subjecting service providers to the anticompetitive conduct provisions of the existing regime
- a service provider prescribed framework for negotiation and binding arbitration in the event of dispute over access
- subjecting monitored pipelines to some of the ring fencing provisions that currently apply to covered pipelines
- public disclosure of specified information for monitoring purposes only
- scope for the service provider to implement additional features such as a voluntary code of conduct.

Service providers, at their discretion, would set out in their access policy the procedures and any terms and conditions for gaining access and the way they propose to handle matters relating to queuing, capacity trading and expansion.

In part, the effectiveness of the monitoring regime depends upon the threat of price regulation involving an access arrangement with reference tariffs. The Commission recommends that monitoring be applied for a minimum of five years to give parties incentives to negotiate commercially. After the initial five-year monitoring period, the relevant Minister would be able to decide that regulation involving an access arrangement with reference tariffs should apply. The relevant Minister's decision would need to be preceded by a recommendation from the National Competition Council on the form of regulation to apply, which only the regulator responsible for oversight of monitoring would be able to request.

Inclusion of a formal monitoring option provides a way of keeping some covered pipelines out of price regulation in situations where the case to apply price regulation is not strong, but the relevant Minister considers it would be inappropriate not to cover the pipeline. It also offers a practical way of making the transition from price regulation to no regulation in a phased way. Further, it enables the costs of price regulation to be avoided, while providing users with a degree of confidence that the behaviour of service providers is being 'watched' and still facilitating third party access. In other words, it enables the benefits of the existing regime to be achieved, but at a lower cost to the economy.

The Commission has made a number of recommendations on how to incorporate the monitoring option into the Gas Access Regime, including suggestions on how to discourage its development into an intrusive and costly form of regulation.

The Commission recommends that an assessment of net economic benefits be used in deciding on which form of regulation should apply (that is, between monitoring and price regulation involving an access arrangement with reference tariffs). This choice would depend on which form of regulation generates greater net benefits. An access arrangement with reference tariffs would only apply where the net benefits are markedly above those for the monitoring option. The Commission recommends the inclusion of specific factors in the Gas Access Regime to be used by both the Minister in deciding on, and the National Competition Council in recommending on, the form of regulation to apply to covered pipelines.

To deal with transitional matters, the Commission recommends that at the time the new regime comes into effect, the coverage status and form of regulation initially would be the same as those applying under the old regime…"