Submission with respect to:

"Review of Asset Valuation Methodologies:

Electricity Lines Businesses' System Fixed Assets"

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1. Introduction

Simon Terry Associates Ltd (STA) are specialists in network utility economics and energy sector analysis. During the past decade, we have consulted widely on issues arising from deregulation of New Zealand's energy markets. We have acted as retained advisers to a range of corporate clients, assisted overseas regulatory authorities, and prepared research documents in support of arbitrations and litigation on these matters.

This submission focuses on a selected set of the questions posed by the Commission in its discussion paper on valuation methodology.[1] Our focus is on the methodology to be used for setting the opening valuations for distribution lines companies as we believe the analysis turns on this issue and that other questions can be answered much more readily when this is resolved.

2. Purpose and Relevant Factors

2.1 Purpose

We agree with the Commission's interpretation that, in absence of a purpose statement being specified for the review, the section of the Commerce Act setting out "the overall purpose of the regulatory regime" should be taken as the purpose for the review (paragraph 2.2 p.18).

Section 57E of the Commerce Act 1986[2] states:

> "The purpose of this subpart is to promote the efficient operation of markets directly related to electricity distribution and transmission services through targeted control **for the long-term benefit of consumers** [emphasis added] by ensuring that suppliers –
> (a) are limited in their ability to extract excessive profits; and
> (b) face strong incentives to improve efficiency and provide services at a quality that reflects consumer demands; and
> (c) share the benefits of efficiency gains with consumers, including through lower prices."

The " long term benefit of consumers" is clearly central. This entails curtailing excess profits, maintaining service quality, and passing through efficiency gains to consumers.

Government has not issued an economic policy statement to the Commission in respect of its overall goals for energy services. It has, however, made public statements on energy

[1] Commerce Commission, *Review of Asset Valuation Methodologies: Electricity Lines Businesses' System Fixed Assets*, Discussion Paper, 1 October 2002.

[2] As amended by the Commerce Amendment Act (No 2) 2001

policy, and the goals set out in those statements are useful when interpreting the intent of regulatory policy. Two of the five "overall outcomes the Government seeks" in energy policy are relevant here.[3] They are:

- "Costs and prices to consumers which are as low as possible, while ensuring that prices reflect the full costs of supply including environmental costs", and
- "Fairness in pricing so that the least advantaged in the community have access to energy services at reasonable prices".

Taking these together with the purpose statement from s57E, it is clear that other things equal, the Commission should adopt whichever asset valuation methodology best serves the interests of consumers. If there are tradeoffs, then these should be quantified as far as possible to identify which methodology gives the greater net benefit to consumers.

2.2 Factors Relevant to Choice of Methodology for Opening Valuations

The Commission's discussion paper suggests (paragraph 3.19 p.27) that "there is a trade-off at times between short-term benefits of income transfers that would favour consumers and long-term benefits from efficiency gains that would also benefit consumers".

The Commission lists "the factors relevant to choosing a methodology" in paragraphs 10.82 to 10.112. Table 7 (p.105) of the discussion paper takes the two main alternative methodologies and sets out the factors the Commission considers significant in making a choice between them. The relevant section of this table is reproduced below.

ESTABLISHING OPENING VALUATIONS FOR DISTRIBUTION BUSINESSES[4]

Methodology	Allocative efficiency	Productive efficiency	Dynamic efficiency	Excessive profits	Cost effectiveness
ODV		+ (If benchmarking against replacement costs encourages productivity gains)	+ (If the regulatory risk of choosing DHC is important and has lasting impact)		+ (As valuations have already been done and the costs incurred)
DHC	+ (If past profits excessive, otherwise neutral)			+ (If past profits excessive, otherwise neutral)	

3 *Energy Policy Framework*, Minister of Energy, 3 October 2000.

4 Source: Table 7: Comparison of Valuation Methodologies for Distribution Businesses, p105.

This table indicates that in the Commission's view, the choice of asset valuation methodology (ODV or DHC) turns in principle on the following:

1. the existence; and
2. the magnitude

of

a) excess profits taken in the past; versus
b) gains to productive and/or dynamic efficiency in the future plus cost effectiveness considerations.

This framework provides a useful way of weighing up the relevant matters in quantitative terms. DHC would be favoured over ODV to the extent that the total benefits of allocative efficiency outweigh the sum of gains to productive and/or dynamic efficiency plus cost effectiveness considerations.

3. A Quantification of Net Benefits

Given that the Commission views the choice of methodology as effectively turning on a net benefits calculation, it is unfortunate that the discussion paper provides no estimates of the scale of benefits at stake with respect to each of the factors identified in Table 7. Putting estimates, however provisional, into Table 7 provides a sense of the direction in which the net benefits approach would point. We consider in turn the four elements of the calculation set out in Table 7.

3.1 Excess Profits (allocative efficiency)

The discussion paper summarises the potential allocative efficiency gains in the following terms:

> "One potential reason for preferring DHC is the suggestion that some (but not all) electricity lines businesses have earned, or are earning, excessive profits, and that adoption of a DHC approach would address this. The Commission has not conducted its own analysis of whether electricity lines businesses have earned, or are earning, excessive profits, and has not therefore reached a conclusion on the validity of this claim.
>
> "Nonetheless, one view is that the purpose of a control regime is to protect consumers from the market power that could be exercised by monopoly businesses, subject to efficiency considerations. The acceptance of this view might lead to DHC being favoured on distributional grounds." (paragraphs 10.90 and 10.91)

STA estimates that consumers are currently paying well over $200 million more each year than the revenue required to sustain the lines companies financially if they had

retained the valuations they commenced with when corporatised in April 1993. This estimate of ongoing excess profits was documented in July 2000 in our report *Lining Up The Charges* (attached as Appendix 2). It is discussed more fully below in section 4 of this submission. This provides a first estimate of the benefit to consumers of the allocative efficiency gain from adopting DHC rather than ODV

Order of magnitude estimate: Over $200 million a year in ongoing benefits to consumers.

3.2 Cost Effectiveness

The Commission's discussion paper summarises the potential cost effectiveness advantage of ODV over DHC in the following terms (paragraph 10.92):

> "The lowest cost option for establishing an initial asset base would be to use the ODV values as at 31 March 2001, which have been audited by the Commission. The costs of the valuations and auditing have been incurred. Other approaches are likely to involve one-off costs and may be difficult to implement in a timely manner."

Setting DHC valuations would be a one-off cost which would require the Commission to commit scarce resources to the necessary analysis. We note that out of the Commission's total budgeted expenditure for 2001/2002 of $18.32 million, some $8.6 million was allocated to "enforcement investigations". Comparing the workload required to estimate DHC ratebases for electricity lines businesses with the Commission's existing volume of investigative work, we find it hard to image that the one-off cost of implementing DHC could conceivably come to more than $10 million. In fact we would expect it to be considerably less than this.

We note also the point made by the Commission (paragraph 9.22 p.82) that "the lowest [ongoing] valuation cost, once in operation, is likely to occur with DHC" with ODV the most costly because of the need for repeated optimization and revaluation exercises, in contrast to DHC which is easy and cheap to administer once established as the ratebase.

Purely for purposes of this analysis, we shall enter into the Commission's Table 7 a very pessimistic one-off cost for implementing DHC of $10 million.

Order of magnitude estimate: A very pessimistic $10million in one off costs.

3.3 Productive Efficiency

The Commission's discussion paper suggests that adoption of ODV rather than DHC might lead to potential productive efficiency gains in the following terms:

> "Benchmarking is an option for encouraging productive efficiency, although asset valuation is used in a limited number of benchmarks. Moreover, some benchmarking

> could be done using physical assets only, so that asset valuation may be irrelevant. ODV could be favoured on productive efficiency grounds." (paragraph 10.85)

No quantitative estimate of the potential benefits is offered, but it is clear from the passage quoted above and the full discussion that the suggested net gain is not expected to be large. With respect to the chief apparent point of difference between DHC and ODV, the ability to benchmark performance across companies, the Commission in fact notes that "as long as the chosen methodology is used consistently, one approach is unlikely to be superior to another in this regard" (paragraph 10.27).

Neither the discussion paper, nor submissions to date, provide any basis for assigning a very large figure to the potential gain in productive efficiency that might be achieved by adopting ODV rather than DHC. Suppose that a 1% saving in operating expenses could be achieved from benchmarking on an ODV basis, then this would translate to $9 million per year of benefits that could potentially pass through to consumers. For the purposes of quantifying the tradeoffs in Table 7, we shall enter a figure of $10 million p.a.

Order of magnitude estimate: Say $10 million a year in ongoing costs to consumers.

3.4 Dynamic Efficiency

The Commission's discussion paper summarises the potential dynamic efficiency gains in the following terms:

> "There may be dynamic efficiency implications for the valuation of opening asset bases. If investors were to consider that the Commission's opening asset values signalled an increased regulatory risk through values being set "too low", this could reduce incentives for investors to undertake efficient investments in the future."(paragraph 10.86)

> "Some investors may have inferred that ODV asset values could be used for pricing given the then Government's prescription of this methodology for disclosure purposes. As well, if DHC were based on vesting values, and returns were constrained on that basis, a few businesses might face financial difficulty. If so, adoption of a DHC approach could increase the perception of regulatory risk, with negative implications for investment into the future. Such considerations could be favour current ODV on dynamic efficiency grounds, if the regulatory risk of choosing DHC were significant." (paragraph 10.88)

Lines company spokespersons have claimed that significant losses of dynamic efficiency would flow from the imposition of an historic-cost ratebase, derived from vesting valuations. We are not aware of any study that has quantified such prospective losses. We can find no quantitative estimate in any submissions made to the Commission in the course of its consultations and hearings into electricity line regulation matters to date, nor in the transcript of oral evidence given during the conference proceedings of July-August this year.

The discussion paper implicitly raises two questions under this heading that are best separately considered. The first is whether there is something inherently more dynamically efficient about an ODV valuation basis than DHC when each is bedded in and no transition issues are in the frame. The second is the potential psychological impact of "apparent" change from ODV to DHC for regulatory purposes.

With respect to the first, in discussing dynamic efficiency (paragraphs 3.14-3.16 on page 26) the Commission notes that the issue is how to maintain incentives for lines companies to innovate, and to invest in a timely manner in new assets as required. The Commission then asks (question 11) "in assessing asset valuation methodologies for system fixed assets, how important is dynamic efficiency?"

We believe that in and of themselves, ratebase methodologies based on replacement cost offer no advantage over historic cost in terms of dynamic efficiency. Internationally, both methodologies have been used by regulators (though DHC has been the most commonly preferred), which ought to enable some sort of empirical comparisons to be made. We are, however, not aware of any empirical evidence that either investment timing or innovativeness vary systematically across jurisdictions according to the choice of valuation methodology.

Both investment and innovation are forward-looking activities driven by the incentives faced by investors in the present and future. Those incentives are affected by the regulatory regime in place, but not by the asset valuation methodology in use, provided only that the methodology is chosen from the set of options that are consistent with financial sustainability of the regulated activities going forward. Any regulatory regime which allows a full competitive commercial return to be secured on funds prudently invested in new capacity or in efficiency-enhancing innovation, and which enables innovators to capture the fruits of cost-saving innovations in the short run, will provide adequate incentives for these activities.

We agree with the Commission's discussion of these issues in Chapter 4, where it is noted that "the risk faced by investors depends on the form of regulation and the extent of contractual risk management available", and that "to ensure efficient ongoing investment, regulators must … ensure that investors are adequately compensated for investment risk, and no more" (paragraph 4.8 p.30). Provided that these basic principles are observed, a regulatory regime may legitimately be based on consistent use of either historic-cost or replacement-cost valuation procedures. There is, in other words, no trade-off in principle between adoption of an historic-cost valuation methodology and the promotion of dynamic efficiency (or productive efficiency for that matter) under business as usual.

A DHC ratebase is in fact likely to provide greater certainty for investors and more objective basic data for decision-makers than is the case with an ODV methodology. This is due to ODV's dependence on investment being optimised to an unknown extent, and to technical progress potentially lowering asset values for past investments.

This leaves us to consider the potential impact of a perceived change in regulatory methodology from ODV to DHC, in terms of perceived regulatory risk. This is the aspect the Commission focuses on. The issue here is not the particular methodology that might be changed to, simply the fact of perceived change in regime which, it is argued, may unsettle investors. No quantitative estimates of the hypothesized long-run cost to consumers have been put forward to date.

We address the issue of "regulatory risk" in some detail below, in section 5 of this submission. For the purposes of the present discussion, rather than inserting a figure we ask what would have to be the scale of dynamic efficiency losses if they were to overturn the choice of DHC over ODV in the trade-off calculation of Table 7.

3.5 Conclusion

The above preliminary quantification yields order of magnitude estimates that allow us to make the following comparison based on summary table 7 from the discussion paper.

ESTABLISHING OPENING VALUATIONS FOR DISTRIBUTION BUSINESSES

Methodology	Allocative efficiency	Productive efficiency	Dynamic efficiency	Excessive profits	Cost effectiveness
ODV		+ (If benchmarking against replacement costs encourages productivity gains) **Say $10m p.a.**	+ (If the regulatory risk of choosing DHC is important and has lasting impact) **$?m**		+ (As valuations have already been done and the costs incurred) **Maximum one-off $10 million**
DHC	+ (If past profits excessive, otherwise neutral) **[See under excess profits]**			+ (If past profits excessive, otherwise neutral) **Over $200 million p.a.**	

The Commission has asked (question 12) "how important is the identification of excess returns as a criterion for the assessment of valuation methodologies?" The figures above indicates that the quantification of excess profits is potentially decisive in choosing the ratebase methodology. Against a preliminary estimate of over $200 million p.a. in consumer benefits if excess profits are restrained, little more than $10 million of annual costs to consumers could arise from loss of productive efficiency and initially increased cost of regulation associated with adoption by the Commission of DHC.

To swing the balance of net consumer benefit away from DHC and towards ODV, dynamic efficiency costs would need to exceed almost $200 million a year to change the preference schedule. There is therefore a considerable onus of proof placed upon those who rest their case for ODV on the allegation that "regulatory risk" will reduce investment efficiency.

4. Excess Profits Estimates

The report of the Ministerial Inquiry into the Electricity Industry, issued in June 2000, offered no opinion as to whether overcharging was likely to be occurring in respect of electricity lines companies. STA had submitted to the inquiry detailed evidence strongly suggestive of excess profits being secured by the electricity distribution sector as a whole. Following the inquiry's failure to report on this issue, STA completed *Lining Up the Charges.*

In that report, we assessed the profitability of each distribution network for eight years from 1993 and presented the results as aggregate performance figures for the electricity distribution sector as a whole. The key results were:

- In the eight years after 1993 (when distribution companies were compelled to corporatise) the companies more than doubled the book value of their networks from $2 billion to $4.2 billion.

- This sharp rise in book values was not due to an extraordinary level of investment in their networks during the 1990s. Expenditure remained largely confined to routine maintenance and replacement.

- While the average line charge remained just over 3 cents per kWh, lines company operating costs fell considerably. Consequently, gross operating surpluses grew substantially, doubling over the period from 0.76¢/kWh to 1.47¢/kWh – an increase of about $200 million a year compared to the level pre-corporatisation.

- This means that consumers are currently paying $200 million more each year than would have been required to properly sustain the lines companies if they had traded forward on the basis of the valuations they commenced with when corporatised in April 1993.

The $200 million figure presented in *Lining Up the Charges* was, and remains, an order-of-magnitude estimate. Subsequent work undertaken by STA, bringing in information disclosed over the past two years, suggests the $200 million figure is conservative and that the true level of excess profits is somewhat higher.

STA's experience in estimating excess profits across the electricity, gas, airfield and port sectors is that while the detailed results are sensitive to the methodology used to measure the quantum of excess profits, it is the treatment of one assumption that markedly

separates the estimates of different analysts. This is whether or not revaluation gains are treated as income to the company.

How revaluation gains are treated was the core theoretical issue confronted in *Lining Up the Charges*. Our conclusion was that:

> "It is a well established principle in the economic and current-cost-accounting literature that real holding gains, whether or not realised as immediate cashflows, represent real income to the asset owners in the period when those gains accrue. This was established for subsequent regulatory practice in the US when the Supreme Court outlawed a range of practices under which utilities had inflated their asset values used for price setting. The issue was confronted in the UK during the introduction of the RPI-X incentive regulation and some consumer charges were reduced substantially to correct for asset revaluations before imposition of the new price cap." [5]

STA argued this, with detailed references[6], primarily to correct an error in the Electricity Industry Inquiry report which argued that revaluations ought not to be taken into account in the reporting of underlying profitability.[7] Since that time, a string of expert opinions have been delivered both to the Commerce Commission and to the Ministry of Economic Development affirming the principle that revaluations should be treated as income.

The importance of the principle was clearly demonstrated during the course of the Government's recently completed gas sector review. As part of the review process, STA submitted a report entitled *Pipeline Profits* which estimated that the two major gas pipeline companies were together earning excess profits of around $60 million a year.[8]

The Institute for the Study of Competition and Regulation (ISCR) was engaged by the Natural Gas Corporation (NGC) to critique STA's report. ISCR argued that excess profits were not being taken on the basis of their opinion that revaluation gains should not be treated as income.

The Ministry of Economic Development then engaged Alastair Marsden of Auckland University to provide an opinion on this and other points of difference between the two analyses. Marsden concluded that:

> "In our view once having established an opening initial asset value for the assets, then revaluation gains should be regarded as income to investors if ODRC asset values can be used to set future prices." [9]

A further report commissioned by the Ministry, from John Small of Covec, further extended the Ministry's investigation's into STA's report and whether gas pipeline

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5 *Lining Up the Charges*, STA, July 2000, p ii.

6 Ibid, Section 4, p 12-17.

7 Inquiry into the Electricity Industry, June 2000, paragraph 75, p15.

8 The report is attached as Appendix 3.

9 "Commentary on *Pipeline Profits: gas pipeline rates of return*, by Simon Terry Associates and response to this report by the New Zealand Institute for the Study of Competition and Regulation Inc", Alastair Marsden, Auckland UniServices Ltd, May 2002

charges should be regulated. The Covec paper also concurred with STA's position on revaluations and stated:

> "We recommend that revaluations should be treated as income, either in that period they occur or spread over a small number of adjacent periods." [10]

Finally, in background documents to decisions taken under the gas review, MED reconfirmed its stance on the question, which concurs with the referee opinion it had engaged.

> "The Ministry's view is also that revaluation gains should be included as revenue when calculating ex-post returns for regulatory purposes. This recognises that in response to an increase in asset value, a profit maximising monopoly will increase revenue (profit) to equate this to the allowable return on that asset, which is based on WACC." [11]

The overall result of the Ministry's investigations into gas pipeline profits was the announcement on 6th November 2002 that a Commerce Commission pricing inquiry would be held.

As noted above, the crucial point reinforced by all analysis undertaken during the gas review is that it is mainly the treatment of revaluations that separates estimates showing significant excess profits from those that show no excess. The following table presents Dr Small's estimates of the accounting rate of profit for NGC distribution activities, averaged over the period from 1997 to 2001 inclusive.[12]

Estimation Approach Used	**Calculated Average ARP**
Disclosed ODV asset valuation	7.12%
Disclosed ODV asset valuation discounted by actual revaluations	22.85%
Disclosed ODV asset valuation discounted by distributed revaluations	15.63%
Historical cost straight-line depreciation with acquisition for NGC	13.31%
Historical cost straight-line depreciation without acquisition for NGC	17.24%
Pipeline proportioned historical cost straight-line depreciation	20.75%

The figures clearly reveal that all but one of the different approaches to estimating the rate of profit indicates excess returns relative to a reasonable WACC for gas pipelines. The only approach that does not show this is the one that does not implicitly or explicitly count revaluations as income.

We believe that whatever precise basis the Commission might choose for estimating profits in the case of electricity lines businesses, these will be found to be excessive

[10] Natural Gas Pipeline Regulation: Is it Necessary or Desirable?, Covec, September at 2002, p30.

[11] Ministry of Economic Development, http://www.med.govt.nz/ers/gas/review/decisions/paper-02/paper-02-06.html#P155_39061

[12] Natural Gas Pipeline Regulation: Is it Necessary or Desirable?, Covec, September at 2002, p17.

relative to WACC so long as the calculations account for revaluations[13]. We are confident that, on this basis, the order of magnitude is at least $200 million per year.

The estimates presented in *Lining Up the Charges* have stood on the public record for over two years and we are not aware of any critique of substance having been published.[14] Given this, we find it surprising that the Commission, having elected not to present any excess profits estimate of its own, made no reference in its discussion paper to the STA estimate.[15] A critique by the Commission of the STA estimates would be helpful to provide a basis for discovering at the forthcoming hearings whether there are any areas of substantial disagreement.

It seems that the Commission's current inquiry regarding the methodology to be used for setting opening asset values will on current planning serve as a proxy for a full price control inquiry into its excess profits. While the recently concluded airfields inquiry ran for some three years and found potential annual benefits for consumers of around $2 million, and the forthcoming gas inquiry is expected to run for two years with potential benefits of not less than $20 million in sight, potential annual benefits to electricity consumers of $200 million have so far not merited a price control inquiry and the issue may be adjudicated in the space of a few months.

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13 The Commission evidently agrees that revaluations are income; cf discussion paper paragraphs 10.60, 10.65 and 10.68. See also Airfields final report paragraph 10.11, 10.14.

14 At the time these findings were published, a spokesperson for electricity networks dismissed them on the grounds that the corporatisation asset values which we used as the starting point for calculating internal rates of return undervalued the assets. We do not accept this criticism. From a regulatory point of view there is no reason for customers to pay more than the minimum required to ensure financial viability of both existing network services and to provide a full commercial return on prudent new investments.

15 While the discussion paper (paragraph 10.33 p.90) refers to *Lining Up the Charges*, the only reference to its numerical findings is the doubling in book value of distribution assets.

5. Regulatory Risk

5.1 Introduction

We concluded Section 3 by noting that if excess profits are of the order of $200 million per year as we have estimated, then dynamic efficiency losses arising from adoption of DHC would have to be of the same order of magnitude to affect the Commission's decision.

We noted earlier that there is no reason to suppose that the choice between ODV and DHC has any implications for dynamic efficiency. The issue therefore reduces to the psychological impact on investor behaviour that might follow a Commission decision which lines companies interpret as changing the rules of the game.

The issue of whether the experience of the electricity industry since 1994 might have engendered expectations of regulatory acceptance of an ODV valuation methodology for pricing purposes, such that adoption now of an historic-cost approach might create in practice a loss of "regulatory credibility", is raised by the Commission (paragraph 10.42 p.92). From this the Commission goes on to hypothesize (paragraph 10.44 p.92) that "if adoption of DHC increased investors' perceptions of regulatory risk in New Zealand sufficiently to raise the cost of capital or to deter investment, ODV would be preferred on dynamic efficiency grounds".

This section examines what is understood by the term "regulatory risk" internationally and how this applies to the question at issue.

5.2 Defining Regulatory Risk

On p.10 the discussion paper says: "If investors were to consider that the Commission's opening asset values signalled an increased regulatory risk through values being set 'too low', this could reduce incentives for investors to undertake efficient investments in the future."

This proposition hinges on what is meant by the phrase "too low". We have no hesitation in agreeing with the Commission's view that (paragraph 5.7 p.43) "using opportunity cost to value assets that involve sunk costs…. would imply a very low, or even zero, value" and that adoption of scrap value as the ratebase would deter future investment in long-lived specific assets.

No such problem arises, however, with use of a DHC valuation, which lies within the internationally-accepted range of sustainable ratebase methodologies and hence cannot be said in principle to be "too low". Since DHC, properly calculated, cannot be "too low" from the point of view of giving investors financial security going forward, its use ought

not to create any problems for future investment provided that the regulator has credibility, acts consistently, gives clear signals, allows a competitive return on and of capital committed going forward, and includes some allowance for error in setting price caps.

The argument that adoption by the Commission of DHC would increase regulatory risk on the grounds of being "too low" is, we submit, without any reasonable foundation in principle. (We return later to the issue of whether DHC could be "too low" on other grounds.)

In reviewing the literature on regulatory risk we have found no suggestion that adoption of historic cost *per se* could be expected to increase that risk. On the contrary, we find that the classic exposition of regulatory risk by senior partners of the Brattle Group[16] (with which STA is affiliated) was set entirely within the context of historic-cost-based rate-of-return regulation in the USA. In *Duquesne Light Company v Barasch* (109 S.Ct 609 [1989]) (in which Brattle Group partners were involved) the US Supreme Court introduced the expression "regulatory risk", giving it the meaning which it generally has today. Regulatory risk arises from two main sources: regulatory errors leading to the setting of too low a rate of return in ratemaking[17]; and regulatory opportunism - "if regulators opportunistically switched ratemaking methodologies to shift exposure to downside risks to investors after adverse outcomes were observed".[18] The *Duquesne* case involved "a switch in regulatory methodology with adverse consequences for investors"[19]. The essence of regulatory risk is that due to the presence of the regulator an asymmetry is introduced into the risks faced by utility investors. This is that "the limits regulation imposes on profits are not matched by equal limits on losses".[20]

The issue raised by the Commerce Commission can clearly not relate to the ratemaker's allowed rate of return, since electricity lines companies have not been subject to any ratemaking authority since 1992. The suggestion therefore appears to be that imposition at this time of a DHC ratebase for ratemaking purposes would be some sort of opportunistic switch in regulatory regime. In the Commission's words (Discussion Paper para 10.41 p.92) "… if investors consider that the regulatory direction was clearly signalled in 1994, and is now being changed, they might perceive that there could be future changes."

We submit that no such switch in regime is implied by adoption of DHC, and that no weight should be attached by the Commission to any claim by lines companies that

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16 Kolbe, L., Tye, W.B. and Myers, S.C., *Regulatory Risk: Economic Principles and Applications to Natural Gas Pipelines and Other Industries*, Kluwer Academic Publishers, 1993. See also Levy B. and Spiller P. "The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation", *Journal of Law, Economics and Regulation*, 10 (2), 201-246, 1994.

17 Kolbe et al (1993) pp.3, 134.

18 Kolbe et al (1993) p.4.

19 Kolbe et al (1993) p.2.

20 Kolbe et al (1993) p.283.

"regulatory risk" favours ODV ahead of DHC.[21] As we argue further in the section 6 below, the clear understanding at the time of vesting the assets in 1993-1994 was that valuations were to be based on DHC book values. This understanding was set by the Minister through a directive to distribution companies to use book for establishment of the new companies. It was accompanied by an explicit rejection of replacement-cost valuation proposals[22]. On the basis of the establishment plans of the various distribution companies, we believe that there has been no official change in this stance so that it is actually DHC that represents the official status quo for lines company ratebases, not ODV.

5.3 Mitigating Regulatory Risk

Recent extensive discussions of regulatory risk by a World Bank team[23] and by NECG[24], extracts from both of which we have reproduced in Appendix 1, emphasize the importance of consistency, predictability impartiality and timeliness in a regulatory regime, if regulatory risk is to be minimised. Neither study makes any mention of valuation methodology.

Regulatory risk, and the associated increase in the cost of capital faced by investors in the regulated sector, is reduced by the application of a few simple rules:

- A regulator should ensure that investors have a reasonable expectation of securing a commercial return on their actual investment outlays; this is secured by consistent application of a DHC asset valuation methodology.

- A regulator should be consistent across the various industries within its jurisdiction, so that investors can read clear signals; this points to the advisability of the Commission carrying over to electricity and gas the principles set out in its airfields report[25]

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21 In passing, we note that in undertaking any rate-of-return regulatory calculation for lines companies and other utilities the Commission might well consider it appropriate to allow for asymmetric regulatory risk in setting the allowed cost of capital, along the lines of *Duquesne*, or in some other way. Under an RPI-X regulatory regime, however, this issue would be less significant, though still relevant to the setting of P_0.

22 See, for example, *Establishment Plan for Successor Energy Company of Auckland Electric Power Board, Approved under Section 27(1) of the Energy Companies Act 1992*, responses to submissions Nos 8247 (p.59), 9015 (p.77),10413 (p.81)10442 (p.85), 10845 (p.89) and 10849 (p.90).

23 Pankaj Gupta, Ranjit Lamech, Farida Mazhar, and Joseph Wright, *Mitigating Regulatory Risk for Distribution Privatization –The World BankPartial Risk Guarantee*, World Bank Energy and Mining Sector Board Discussion Paper No 5, September 2002, available on the web at http://www.worldbank.org/html/fpd/energy/pdfs/mitigatingrisk.pdf.

24 Henry Ergas, Jeremy Hornby, Iain Little and John Small , *Regulatory Risk, A paper prepared for the ACCC Regulation and Investment Conference, Manly, 26-27 March 2001*, Network Economics Consulting Group, http://www.necg.com.au/pappub/papers-ergas-regrisk-mar01.pdf.

25 We note the expressed expectation of the Minister of Energy that the Commission will use a consistent approach in its treatment of airfields, electricity and gas: "The Commission has recently

- Regulatory decisions should be forthcoming without undue delay.

- Regulatory risk is not increased by clawing-back windfall gains secured by monopolies in the past, unless this constitutes a clear change in the rules followed by that regulator or signals the likelihood of some future change in the regulator's rules.

The standard definitions of regulatory risk all refer to the effect of regulatory decisions on the cost of capital for the regulated industry. The essential test for regulatory risk is, in other words, an objective one, not a subjective one.

Regulatory risk is increased by any regulatory procedure that has the potential to "strand" assets in the future, leaving investors with less than their expected return. It is ironic in the extreme that regulatory risk should be used by proponents of the ODV valuation methodology to advance their case, given that the optimisation procedure built into ODV involves the deliberate stranding of assets by the regulator whenever technical progress occurs that reduces optimised replacement cost. The prospect of asymmetric returns to investors (the essence of regulatory risk) is explicitly built into the ODV methodology.

The Commission is clearly aware of the regulatory risk inherent in ODV, and in evaluating the appropriate WACC to be used in setting a possible cap on lines charges, has come to the view that it is ODV that would entail a higher WACC than DHC, to compensate investors for the greater prospect of asymmetric outcomes (stranding). (Cf pp.93-4 of the Discussion Paper, especially paragraphs 10.49, 10.50 and 10.53.)

The Commission seems to misconstrue the issue of regulatory risk, however, in its questions 42 & 43, which ask "if businesses bear the cost of downward revaluations is this risk asymmetric (i.e. to the disadvantage of investors) and how could it be reflected in the WACC without compromising incentives for efficient investment?" The concept of asymmetric risk is not the same as the proposition that a downward revaluation imposes a cost on the business targeted. Downward revaluation instigated by a regulator introduces "regulatory risk" only if it is a change in the rules. If the downward revaluation is merely the reversal of a previous unauthorised upward revaluation, the cost of which was borne by consumers, and this restoration of the status quo ante is in line with the initial regulatory compact, then no regulatory risk issues arise.

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undertaken such an inquiry into airports and is undertaking extensive work in electricity - it would draw on this experience in reaching consistent conclusions across these three sectors." [Emphasis added] (Hon Pete Hodgson, *Gas Sector Review - Paper 2: Market Structure and Economic Regulation*, paper for Cabinet Economic Development Committee, 6 November 2002, http://www.med.govt.nz/ers/gas/review/decisions/paper-02/index.html, part C paragraph 55.) Note also the following comment from Ofgem, *Structure of Electricity Distribution Charges Update document*, October 2002, p.19 para 4.2: "The issues surrounding the structure of charges for connection to and use of distribution systems cannot be considered in isolation. Many of the issues in relation to network charges have also been considered in relation to access to other gas and electricity networks. Ofgem considers that, where appropriate, common principles should be recognised and applied consistently between the gas and electricity sectors and across similar activities (for example transmission and distribution)."

We therefore turn to consider further the issue of what reasonable expectations were held by electricity distribution company managers in the 1990s, which amounts to reconstructing the "regulatory compact" struck in 1993 at the time of corporatisation.

6. Expectations

The Commission has raised the questions of what expectations were reasonably held by investors in lines businesses since 1992, and how far the prospect of financial pain for lines company shareholders should lead the Commission to stay its hand from regulating line charges at levels consistent with DHC asset valuations. Neither past expectations nor future financial pain, in our view, provides any good grounds for adopting ODV as a ratebase methodology..

Take first expectations. There is, at first sight, some substance to the suggestion that the Government's stance over the past decade has given (false) comfort to lines company managements engaged in the process of unilateral asset revaluation. We referred explicitly to this in *Lining up the Charges*, and gave there several good reasons for rejecting the use of this argument either to justify continued overcollections or to resist any retrospective sanctions. Those arguments remain valid and bear repeating.

The light-handed regulatory regime introduced at the beginning of the 1990s was intended to be an effective alternative to so-called "heavy handed regulation", and was defended on that basis. Typical of statements in official documents of the early-mid 1990s are the following:

> Information disclosure is the alternative to price control which has the least distortionary effect on the use of resources by firms … Potential competitors can use the information to ensure that they are given access to essential facilities … at reasonable prices.[26]
>
> [The Electricity Information Disclosure Regulations are aimed] to make transparent the performance of electricity businesses with market power, and to facilitate negotiations by customers with these businesses and recourse to the provisions of the Commerce Act.[27]
>
> If the conditions for access being required by the [facility] owner are too onerous (and are anticompetitive in intent) then an appropriately structured information disclosure regime will provide sufficient information to enable the discriminated party to take action under the Commerce Act…[28]

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[26] Officials Coordinating Committee, *Review of the Regulation of the Natural Gas Industry: Report to the State Sector Committee* March 1991, p.5.

[27] Ministry of Commerce, *Discussion Paper on Proposed Amendments to the Electricity (Information Disclosure) Regulations 1994,* October 1996, p.i.

[28] Officials Coordinating Committee 1991 p.25 paragraph 73.

From the outset, successive Ministers of Energy made it clear that any electricity distribution businesses (or, for that matter, gas pipeline businesses) which abused their market power should expect to be subject to regulation, using the powers provided for in Part IV of the Commerce Act 1986.

We cite in particular the statement of a senior Ministry of Economic Development official when asked by a New Zealand Press Association reporter to comment on the prospect that electricity distribution companies might revalue their assets to ODV and price off this base. In the article, entitled *New Valuations No Licence to Print Money,* the journalist reports as follows:

> "From next year, the businesses will be expected to file that information based on a new benchmark valuation system: optimised deprival value (ODV). This system tends to inflate present book values by two to three times, prompting fears that power prices will be raised if companies continue to require present rates of return.
>
> But the head of the Ministry of Commerce Energy Markets Unit, Tony Fenwick, says ODV is required only for regulatory reasons and that companies could face price controls of they did try to use ODV values to inflate their profits. He was aware that some companies plan to bring the new valuations into their books, but he told NZPA in an interview that there was no requirement to do so. 'If there was concern that the rates of return were too high, the remedy would be probably through some form of price control' he said" [29]

By the late 1990s a majority of lines company managers were anticipating regulatory intervention. An ANZ Securities survey in 1997 recorded that 56% of lines company CEOs expected "the regulator to enforce the regulatory 'cap' on line revenues" by 1999 and a further 20% some time from the year 2000 onwards.[30] Thus there was a strong expectation on the part of those managing the assets that regulation would come, although the precise form it would take and the level of the cap were unknown.

In oral submissions to the Commerce Commission on 18 July 2002, we raised the issue of "subgame perfection" of a regulatory regime.[31] Without entering into the technical detail

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29 *New Valuations No Licence to Print Money*, Gavin Evans, NZPA, 15 November, 1994.

30 *The New Zealand Electricity Sector,* ANZ Securities, 1996/97, Section 2.2, Question 6.

31 Transcript, 18 July 2002, p.13 lines 9-19. Corrected for some typographic errors in the transcript, the relevant passage would read: "**MS BATES:** There might be some legal problems with [retrospective clawback of excess profits] in terms of the premise against legislation taking retrospective effect, which -- that's what it would amount to, it seems to me.
MR BERTRAM: I think that's correct and I think that's always been a difficulty with the light-handed regulatory regime in New Zealand. It has not been clearly determined the extent to which that light-handed regime must imply retrospective sanctions in a case of a breach of the regulatory compact. It seems to us that a light-handed regulatory regime to be credible must hold out the threat of retrospective sanction, otherwise the knowledge of all those regulated is that they can take one hit of excess profits without any retrospective claw back, and I can't see that you could build a regulatory regime around that proposition…..

of game theory, we believe that the basic point we were making is both valid in principle and illuminates the question of what expectations lines company managers may, and should, have held at the time the businesses were corporatised. We begin from the presumption that the intention of Ministers of the Crown, in threatening regulatory intervention as the backstop for light-handed regulation, was to confront lines businesses with an effective and credible threat, sufficient to deter them from taking excess profits.

In other words, any lines business contemplating taking excess profits ought to have expected a reaction from Government of a type and magnitude sufficient to nullify the gains from such profit-taking. The essence of an effective and credible threat is that it presents the other party with the prospect that it will lose, rather than gain, from the course of action which the threat is intended to deter.

A credible and effective light-handed regulatory regime could not have rested simply on a threat by Government to regulate profits only from the date of eventual intervention, leaving untouched all gains secured by the monopoly provider during the period when it was in breach of the light-handed regulatory compact but before regulatory intervention occurs. That threat would have been an open invitation to lines businesses to use their market power opportunistically in the short run, and then continue to secure normal competitive returns under the subsequent regulatory cap at no disadvantage.

A credible regulatory threat could only have been conceived, therefore, as including the threat (explicit or implicit) that unwarranted monopoly profits would be clawed back retrospectively once regulatory intervention had been triggered. To introduce light-handed regulation without such a credible threat of retrospective clawback could have been the action only of a Government which either lacked expert economic advice, or intended regulation to fail. We do not accept that either of these possibilities could have been a part of the New Zealand Government's original decisions to adopt light handed regulation. We therefore believe that it must have been the case that (i) Government itself always held in reserve the option of retrospective clawback to retrieve gains resulting from the abuse of market power; and (ii) rational lines company managers would have been aware that this was the case.

Managers would have been familiar with other spheres in which retrospective reversal of improperly-acquired gains is the norm. (Inland Revenue, for example, frequently recovers back taxes from defaulting taxpayers; creditors routinely foreclose on defaulting debtors.)

We would argue, therefore, that retrospective action to prevent lines businesses from retaining excess profits must have been in the minds of both Ministers and lines businesses from the outset, if the light-handed regulatory regime was to be taken at face

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I come at it as an economist assuming that it was intended to have a credible regime and looking at the incentive requirements for a regime to be credible. It's a simple proposition in game theory, that you have to ensure that the regulatory regime is what's called sub-game perfect, which is to say that there mustn't be an option open to the regulated party that enables them to keep the gains from a breach of the compact.

value, which we believe it should have been. The real issue was always what the Government's threshold of tolerance would be – not whether regulation, once triggered, might be retrospective in its effects.

Returning briefly to the issue of regulatory risk, it should be pointed out that the exposure to asymmetrically-distributed outcomes under light-handed regulation was a risk faced not by suppliers, but by consumers. Consumers in 1992 could expect with certainty that they would not pay less for electricity line services than a DHC-based price sufficient to yield normal profit to suppliers, given that these charges would not be directly regulated. On the other hand consumers were faced with the prospect of higher-than-necessary prices (with a consequent expropriation of consumers' wealth) in the event that the lines companies failed to abide by the regulatory compact, and failed to compensate consumers for the impacts of revaluations when switching to ODV valuations as their implicit ratebase for pricing. That unfavourable outcome did in fact emerge. With hindsight it is clear that Government, in asking consumers to accept light-handed regulation, was exposing them to regulatory risk if lines companies' opportunistic behaviour was not eventually sanctioned.

In saying this we are clearly arguing that there was a regulatory compact in place during the 1990s and that it was the lines companies which breached this compact, not Government. The Government side of the compact was that the regulatory yoke would be lifted from the shoulders of utility operators. The electricity distribution companies' side of the bargain was that they would self-regulate in a responsible manner, including refraining from exercising undue market power at consumers' expense.

The prescription in the Electricity (Information Disclosure) Regulations 1994 that distribution company assets were to disclose ODV network valuations was explicitly qualified in the ODV Handbook, as the Commission notes (p.92 footnote 39), by the statement that "there is specifically no regulatory requirement that prices be determined on the basis of system assets being valued according to ODV". Self-regulation was supposed to mean what it said – that companies would behave in a responsible fashion and thereby ensure that consumers' interests were protected without the need for intervention by the regulator. Self-regulation, in other words, always implied self-restraint.

It appears from some of the submissions recently made to the Commerce Commission that at least some industry participants are seeking to suggest that the withdrawal of heavy-handed regulation, coupled with the requirement for disclosure of ODV valuations and ARP rates of return based on those valuations, ought to be interpreted as *de facto* regulatory approval to use ODV valuations as a ratebase. This is, we submit, a complete misreading of the signals given by Government.

Specifically, the disclosure regulations were designed to reveal a rise in rates of return that would accompany an uncompensated revaluation, via the single-year jump in ARP (now ROI) that such revaluation would cause. These excessive rates did appear but, to the best of our understanding, their significance was not fully appreciated by officials at

the time. We have extensively documented this point elsewhere and the following is a guide to the location of those discussions:

- Design of the disclosure regulations intended to reveal revaluations: *Lining Up the Charges*, p 16,17.
- The occurrence of single year price excessive rates of return: *Lining Up the Charges*, p 36.
- Design of the disclosure regulations and Government's interpretation of the results: *Pipeline Profits*, p 28-32.

The Commission has asked (question 86) "what inferences, if any, could electricity lines businesses reasonably have drawn as to the appropriate asset valuation methodology to be used for pricing, from the introduction of information disclosure in 1994?" The clear answer is that no inference could reasonably have been drawn. The disclosure regulations explicitly stated that ODV was not mandated for use in pricing, and the ODV valuation procedure for disclosure purposes was clearly not reconcilable with the historic-cost-based vesting values specifically mandated by the Minister of Energy in May 1993 as the basis on which the newly-established distribution companies were to trade forward. The establishment plans embody the reasonable expectations that managements held at that time regarding future pricing.

We note that the Commission states (para 10.40 p.91) that "it is arguable that the regime involved the threat of price control based on the ODV valuations". We do not accept this proposition. At the time the Electricity (Information Disclosure) Regulations were designed, DHC was the accounting norm for distribution companies, and would have been expected to remain so on the basis of their Establishment Plans.

The light handed regulatory compact was silent as to the precise form that regulatory intervention would take if triggered (as it has now been). No inference can be, or could have been, drawn from the disclosure regulations as to what the Minister or the Commerce Commission might do if Part IV of the Commerce Act was activated. In absence of any government policy statement to the contrary, the vesting valuations must stand as the most clear and legal touchstone.

There was no suggestion at the time the disclosure regulations were first introduced, in 1994, that ODV should be the pricing base, and the great majority of distributors continued to file their annual accounts on a DHC basis up to 1996 while filing disclosure returns on an ODV basis in parallel.[32] For at least three years, most distributors had no difficulty recognising one set of accounts as the base for management of their business and the disclosure regulations as simply the performance evaluation tool they were intended to be.

For the same reasons we reject the suggestion (p.92 paragraph 10.42) that "investors in distribution businesses reasonably assumed, on the basis of the prescription of ODV for

[32] See Appendix 1 of Lining Up the Charges for a company by company year by year list of both book values and ODV valuations.

disclosure, that ODV valuations would be acceptable for pricing purposes", if by this is meant pricing on ODV without subtracting any allowance for revaluation gains. In addition to the disclosure regulations being designed to reveal such uncompensated revaluation, we note that the Ministry of Economic Development has recently reiterated unequivocally in Paper No 2 from the Gas Sector Review that: "the Ministry's view is … that revaluation gains should be included as revenue when calculating ex-post returns for regulatory purposes."[33]

It was always clear that ODV valuations would be far higher than historic-cost book values which the distribution companies inherited at vesting. It was equally clear that companies were under no obligation to use ODV valuations in their own books. It was therefore obvious that the companies would be able to record a competitive return on their shareholders' equity, calculated appropriately using historic-cost book values, while showing a regulatory rate of return well below the assumed ceiling. There was at no time any prospect that a distribution company would be faced with insolvency, or inability to access finance for investment, if it continued to trade on the basis of its historic-cost book value. On the contrary, as noted above most lines businesses did so for a few years without encountering (to our knowledge) any such obstacles and a number of other continued for longer periods. Such separation between company accounts and regulatory accounts is common under any regulatory regime which imposes a price cap rather than a regulated revenue path.

In setting its pricing, a distribution business under light-handed regulation ought to have had regard first and foremost to the undertakings given to Government and consumers by itself (through its establishment plan and associated statements) and industry spokespersons at the time of corporatisation.

The outstanding feature of the establishment plans is that all companies valued their assets at historic cost, on the basis of clear and explicit instructions issued by the Minister of Energy in May 1993. Had the Minister intended the companies to trade forward on the basis of replacement-cost book values, the time for him to say so was 1993 (when, incidentally, the ODV-based information disclosure regulations were being drafted in parallel with the establishment process for the new companies). On the contrary, the Minister chose to vest the assets at historic cost, and in doing so opened the way for the companies to trade forward on that basis (i.e. with competitive profit rates on historic-cost capital bases). No party that we are aware of appears to have held any expectation in 1994 other than that the new companies would be profitable on a DHC basis, in an environment which Government statements indicated was to simulate competitive market conditions via the process of self-regulation.

This provides an obvious answer to the Commission's question 35, "what events could be used as a basis for valuing system fixed assets at historic cost?" Vesting values at

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[33] *Gas Sector Review - Paper 2: Market Structure and Economic Regulation,* paper for Cabinet Economic Development Committee, 6 November 2002, http://www.med.govt.nz/ers/gas/review/decisions/paper-02/index.html, part C page 15 paragraph 48 (box). This paper is attached as Appendix 4.

corporatisation stand out as having received an explicit sign-off from the Minister of Energy as well as being the values adopted by the new companies' boards of directors for reporting purposes, and by IRD for tax purposes. We see no need for the Commission to search further for starting values for a set of regulatory accounts.

Furthermore, a number of companies explicitly stated that their historic-cost book values coincided with the estimated economic value of their business, on the basis of the discounted present value of anticipated earnings. (See, for example, the establishment plan for Capital Power) Translated, this means that the reasonable expectation which they held was that they would earn a competitive return on those book values – not a much higher return.

Consider next the issue of how revaluations should have been accounted for by the new companies, and what reasonable expectations could have been held by their CEOs and financial officers. That revaluations are income was a well-established proposition by the 1990s. (For relevant references going back to the 1930s and spanning the subsequent literature in current-cost accounting see *Lining Up The Charges* p.12 note 24.) That regulators would be expected to include revaluations in the calculation of the regulatory rate of return should have been clear to anyone versed in the relevant literature (see especially the Byatt Report, *Accounting for Economic Costs and Changing Prices: A Report to HM Treasury* (HMSO 1986), which laid the foundation for privatisation of UK state-owned utilities.)

While the treatment of revaluations in the distribution companies' own annual accounts could follow the New Zealand GAAP procedure of entering revaluations in the balance sheet as reserves with no corresponding entry in the profit and loss account, the regulatory accounts for disclosure purposes were explicitly structured to include revaluations as income when calculating the Accounting Rate of Profit, which was explicitly stated to be "equivalent" to WACC, and was intended to be the financial measure "which is most focused on monitoring monopoly behaviour"[34].

This clear statement of the intent of the disclosure regulations with respect to asset revaluations was contained in a briefing paper circulated by the Ministry of Commerce at the time the regulations were introduced and explained to the distribution companies. Distribution company managers and accountants could not reasonably claim to have been ignorant of the nature of the ARP calculation, nor of the intent behind its inclusion in the regulations. That intent was to reveal the returns secured by distribution companies on their vesting asset bases, with revaluations included as income. The reasonable expectation was always that a company which recorded an ARP in excess of its WACC was inviting regulatory intervention. Nor could anyone familiar with the principles lying behind the ARP formula reasonably claim to be unaware that a very high single-year ARP driven by revaluations would signal a permanently higher expected revenue stream

[34] Ernst and Young, *Rationale for Financial Performance Measures in the Information Disclosure Regime, Including Use of Optimised Deprival Values and Avoidance of Double Counting of Asset Related Expenses: A Report to the Energy Policy Group*, Ministry of Commerce, August 1994, p.3.

– that is, a permanent transfer of wealth from consumers to the company unless the regulator stepped in.

When first Vector, then other companies, revealed such high ARPs, it was widely anticipated that regulatory response would follow. This accounts for the fact that by 1997 fully three-quarters of CEOs surveyed by the ANZ Bank were anticipating regulation. We regard this as evidence of a realistic and reasonable expectation held by the industry, given the apparent breach of the deregulatory bargain. The expectation was in error only with respect to the pace at which regulatory intervention followed the breach.

In retrospect, the regulatory response was undeniably slow. Forced separation of natural monopoly facilities via the Electricity Industry Reform Act 1998 (partly driven as a different form of response to excess line charges) was followed by a year of bedding down the new structures; then in 2000 the Government launched a Ministerial Inquiry, following which Parliament sent the question of asset valuation to the Commerce Commission for the present study.

The fact that it has taken five years for the regulatory machinery to reach the present stage reflects the great reluctance of both the previous and the present New Zealand Governments to resort to regulation without clear and compelling evidence that the deregulatory compact had been breached. That evidence is now before the Commission.

Any claim that the regulatory rules changed at some point from their original intent, to such an extent that at some time in the past lines company managers could reasonably have formed the expectation that they would be allowed to take and retain monopoly profits, requires a rewriting of history. The logic of light-handed regulation since 1992 has led inexorably to the present review.

The slow pace of the process, especially the very muted Government response to the high ARP disclosures of 1997-1999, may have led some to suppose that excess profits would be tolerated, but the long-run record dispels any notion that this could have been a reasonable expectation. The electricity distribution industry has, by its own actions, now triggered precisely the outcome signalled by Government as the fallback. For industry spokespersons now to attempt to shift the blame onto Government via allegations of "regulatory risk" is a complete misrepresentation of the situation.

We note that several lines companies, in submissions to the Commission, have advanced this line of argument, suggesting that they would be so taken aback by adoption of DHC that they would cease to invest in a timely fashion or innovate appropriately. One interpretation of these comments is that they foreshadow an investment strike by lines businesses. Any such action would in effect amount to natural monopoly providers using their dominant positions in their respective geographical markets to withhold investment themselves and deter investment by third parties.

That prospect should certainly not be allowed to influence the regulator's decision today. Section 36 of the Commerce Act already provides remedies that may be taken by

electricity users who, wishing to secure the benefits of an investment project which their local lines company refuses to undertake on grounds of "regulatory risk", set out themselves to install the relevant assets and interconnect them with the existing network.

We therefore respond as follows to the Commission's question 86, namely "how is the choice of opening values likely to affect investors' perceptions of regulatory risk (and therefore dynamic efficiency) going forward?"

First, any well-informed New Zealand lines company manager should be in no doubt that the Commission has a mandate from Parliament to decide a valuation methodology on the true merits, and that this choice may legitimately be DHC.

Second, there need be no significant long lasting effect on dynamic efficiency going forward, provided that the Commission (i) establishes a clear regime to govern the future treatment of prudent investment and of the returns to efficiency-enhancing innovation, and (ii) ensures that lines network owners do not use their market power, in their geographic markets, to exclude potential investment in interconnected system assets, where such investments are desired and underwritten by consumers but the incumbent is unwilling to proceed for any reason. .

By way of concluding remarks on the question of regulatory risk and expectations, we believe that the background papers to the recently concluded gas review are highly pertinant. In considering essentially the same core issues as discussed in this submission Government focused very strongly simply on the question of whether there were excess profits and, if so, what mechanism should be used to remove these. Having studied the background documents[35], and in particular paper number 2, we note the following:

- We can find no reference to official concern that removing excess profits gains from uncompensated revaluations raises "regulatory risk";

- We can find no reference to official concern that removing gains from uncompensated revaluations would be contrary to reasonable expectations held by pipeline companies;

- We can find no reference to official concern that removing gains from revaluations would cause financial difficulties for pipeline companies.

It is the last of these we turn to in the following section.

[35] Ministry of Economic Development, *Gas Sector Review – Paper 2: Market Structure and Economic Regulation* http://www.med.govt.nz/ers/gas/review/decisions/paper-02/paper-02-06.html#P155_39061.

7. Other Matters

7.1 "Financial Difficulties" for Lines Companies

There are a number of matters raised by the Commission in its discussion paper which involve judgements as to whether in practice, as distinct from principle, a decision to adopt the DHC methodology would cause undue pain to investors who have purchased shares in lines businesses. The issue is raised on p.10:

> "A further consideration is that valuations significantly below book values might give rise to financial difficulties for some electricity lines businesses."

The nature of these financial difficulties is not spelled out in the discussion document, so they remain unclear. We presume that the Commission has in mind two varieties of financial difficulties: those arising from high gearing on the basis of inflated asset values, such that reversion to historic cost would lead to downgrading of the firm's credit rating; and the pain suffered by investors who have paid inflated prices for shares in companies which will not secure the anticipated level of monopoly profits. Regarding credit rating difficulties, this is an empirical question which ought to be able to be resolved quite quickly by examining the balance sheets of the relevant companies.

The other class of financial pain is another matter entirely.

The Commission asks (Question 33) "what could explain the evidence of transactions of electricity lines businesses' system fixed assets [at prices] greater than their ODV? How important are tangible and intangible assets in explaining the evidence"? The Commission has clearly identified (p.45 paragraphs 5.17 and 5.18) the obvious explanation for high market values placed on some lines businesses, namely that investors do not expect regulatory constraints to bite on the taking of monopoly profits in future: "the value includes the monopoly rents that might be earned". We suggest that the appropriate way to think about the components of market value is to start from an historic-cost-valued set of tangible assets, and then add two sets of intangibles:

- first those that are legitimately connected with the term "goodwill" and have to do with the legitimate prospects for growth of the business in future, and

- second those that are reflective of the expected use of market power to recover monopoly rents.

We suggest that the second of these should properly be stripped away by regulation, and that any consequent losses borne by investors should lie where they fall.

The most important point here is that the decision whether or nor to remove gains from revaluations should be made entirely separately from any concern as to the financial

effects this may have on the companies. The legislation does not provide for the Commission to take the financial soundness of lines companies into account, and any judgement reliant on such grounds would clearly be vulnerable to judicial review.

Based on our excess profits estimate of $200 million, application of a price cap to remove future gains from revaluations would involve an immediate downward adjustment of allowed revenues of the order of 20%, which would be well inside the scale of regulatory interventions observed in other jurisdictions. (For example, we refer the Commission to the downward adjustments to P_0, ranging from 18% to 35%, for UK distribution companies outside Scotland[36] in OFGEM's 1999-2000 price review of UK lines charges[37].)

It would appear that due to the stable ownership of the great majority of lines companies, the prospect for financial difficulties is much reduced. For the 20 or so companies which are 100% trust-owned, writing down book values should not involve any party having to make a sacrifice (providing debt levels are normal). It amounts only to a reconstruction of the accounts. This process raises a host of technical issues, but the real assets held by the trusts today are in essence the assets they began life with in 1993. The change consists of no more than returning to the original understanding of their value.

Much the same is true for the lines companies which are 100% owned by local bodies. Here the issue of any borrowing the enterprise may have made and any dividends paid to the local body can (for the purpose of considering wealth effects) be considered "internal transfers". If transfers need to be made back to the lines companies, no wealth will have been lost by the relevant Councils.

This leaves just those few companies which have some private shareholding. Their circumstances will vary considerably depending on the extent of private shareholdings, acquisition costs and debt levels.

To the extent there is concern about the financial effects of this or any other degree of income reduction, once the Commission has chosen an asset valuation methodology to maximise consumers' net long term benefit (as s58E requires) the relevant practical issue is ***how*** the method is implemented in price setting, not ***whether*** it is to be implemented. How it is implemented involves issues beyond the scope of this submission.

7.2 Retrospective Sanctions for Past Overcharging

In addition to capping allowed revenues going forward, the Commission faces the difficult task of deciding how to compensate consumers for the excess profits extracted

[36] Scottish lines charges have been held down by the Hydro Benefit, a cross-subsidy funded by the large rents secured by hydro generators due to their low operating costs.

[37] OFGEM, *Reviews of Public Electricity Suppliers 1998 to 2000 Distribution Price Control Review Final Proposals*, December 1999, p.59 Table 6.3; Ofgem *Annual Report 1999* pp.28-29.

over at least the past six years. How this matter is resolved in the case of electricity will establish a precedent for the regulation of other utility sectors in due course.

The Commission asks (question 40) "if revaluation gains have not been treated as income, should consumers now be compensated in some way?" We submit that, in principle, the only sustainable answer to this question in the context of this inquiry is: yes.

The light-handed regulatory regime for electricity dates from the time of establishment of the lines businesses as companies, and any regulatory response to abuses of their market power since that date (including both failure to pass through cost savings, and failure to account for revaluation gains as income in calculating and justifying their lines charges) should in principle include retrospective sanctions. As discussed above, a failure to call for such retrospective sanctions would erode the credibility both of the Commission and of the regulatory regime. Such a loss of credibility would entail an increase in regulatory risk and a strong incentive for other sectors to exercise their market power to the maximum in the short run knowing that the maximum downside risk was simply a curtailment of the practice.

The risk faced by distribution companies as they raised their profits at consumers' expense during the second half of the 1990s was in no sense a "regulatory risk" – i.e. a risk that Government might arbitrarily change the regulatory regime at some point. The risk was that the Government would act on its general threat to regulate. That was a risk the industry itself chose to run, with its eyes wide open. For the Commission now to stay its hand and allow monopoly profits to persist over the long term would indeed be a change of regulatory regime.

As noted above, it is the case that for whatever reasons, the New Zealand regulatory authorities have been very slow to act on this matter. This may provide grounds for lines companies to seek some sharing of the burden for repayment of past excess profits. To be weighed against this is the view that sanctions should be such that the sanctioned party is left not simply neutral, but worse off, to the extent it knowingly stepped out of line. In a recent address to the NZIER annual meeting, the Chairman of the ACCC commented in respect of appropriate penalties to deter price fixing:

> "Work in the United States indicates that the optimal corporate fine would need to be extremely high if fines were to remove the prospect of profiting from participating in a cartel. Because not all cartels are detected, to effectively deter a corporation from entering a cartel, the maximum fine should be six or seven times the profit arising from the illegal conduct."[38]

How the balance of these and other considerations should be struck is a matter beyond the scope of this submission.

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[38] *Building a Modern Trade Practices Act: A Trans-Tasman analysis*, Professor Allan Fels, Chairman, Australian Competition and Consumer Commission, 18 September 2002.

To the extent there were profound adverse impacts on a particular company to the point that, in the extreme, it became insolvent, this need have no detrimental impacts on consumers. The assets would continue to constitute a thoroughly attractive business and it would simply be a matter of finding new owners who would put in place a new capital structure. Appointment of a statutory manager is an option open to government if there were any suggestion that service levels would be affected by the change of ownership.

7.3 Capital Contributions

The Commission asks (question 54) "under what circumstances should capital contributions be excluded from the regulatory asset base?" The appropriate answer in our views is that insofar as items of capital equipment entered the asset base prior to 1993 at no cost to the old power board or MED, these items ought to be excluded from the regulatory asset base insofar as is practicable, given the state of asset registers. Capital contributions since 1994 should all be able to be accounted for, and should be excluded from the asset base. The general principle is that suppliers of lines services should be entitled to a return on and of capital which they have actually invested themselves, but have no right to charge consumers for the use of capital items donated by others (presumably for the benefit of consumers).

7.4 FRS-3

In questions 28 and 72 the Commission asks about the relevance of FRS-3. The problem with FRS-3 is that it prescribes a replacement-cost methodology for highly specific sunk-cost fixed assets. This standard has already been superseded by the Commission's adoption of an historic-cost approach in the airfields report, and it has little to offer in the case of electricity lines businesses, given that FRS-3 is premised on the non-use of historic cost.

7.5 Multi-part Tariffs

The Commission suggests (paragraph 10.15 p.87) that the use of multi-part tariffs might enable prices to reflect marginal cost even when total and average revenues are set to recover capital charges on a (high) ODV rather than a (low) historic-cost valuation. While acknowledging that the Commission has set this issue aside as being "beyond the scope of this paper", we would point out for the record that long-run investment decisions by potential consumers of electricity depend on the all-up average price, not on the detailed structure of the tariff. The advantage of a multi-part tariff in signalling short-run marginal cost is confined to the short run. In the long run what counts is the full cost of electricity to users, relative to the costs of alternative energy sources and other factors of production.

8. Conclusion

In response to the Commission's question 7, "in assessing asset valuation methodologies for system fixed assets, how important is allocative efficiency?", our response is that this should properly be the Commission's primary concern unless clear and quantitative or otherwise-compelling evidence is to hand that a tradeoff with productive and/or dynamic efficiency is present and at a level financially comparable to the excess profits we observe.

We note that in paragraph 10.91, p.101, the Commission states that a DHC valuation methodology will be appropriate if one takes the view that "the purpose of a control regime is to protect consumers from the market power that could be exercised by monopoly business". We submit that that view of the purpose of control is the one which ought to prevail in this inquiry. Protection of consumers by promotion of allocative efficiency is the standard justification for regulation found in economics textbooks. The same purpose has been clearly spelt out, with explicit reference to Part IV of the Commerce Act 1986, by the Privy Council in *Telecom v Clear Communications* (12 NZLR 385 [1995] pp.404-05, 409), and by the Court of Appeal in *Vector v Transpower* (6 NZBLC 102,908 [1999] paragraphs 61-65).

Appendices

1. Extracts from two recent papers on regulatory risk

2. Lining Up the Charges, STA, July 2000

3. Pipeline Profits, STA, July 2001

4. Gas Review Cabinet Paper no 2, Section C: Natural Monopoly in Gas Transportation.

Appendix I: Extracts from two recent papers on regulatory risk.

1. Extracts from Gupta et al 2002[39]

Power distribution networks have several special features that necessitate regulation:

- They are capital intensive, and most network assets may not be redeployed once they have been installed. Therefore, if distribution tariffs are not maintained at a level that permits the recovery of reasonable costs (including a fair rate of return), the owners may find themselves trapped in a loss making business, unable to liquidate their assets.
- They are characterized by economies of scale to the extent that the market is most economically served by one distribution network in a given geographical area. In the absence of regulation, consumers may therefore be exposed to the abuse of monopoly power by the network provider.
- They supply a service considered valuable to the welfare of households, and therefore access to electricity, its price and quality can be a political issue.

These characteristics both make economic regulation a necessity for utilities and make it difficult and fragile. It is also important to note that, from the perspective of private investors, these features of distribution businesses constitute risks.

- Firstly, the fact that it is difficult to liquidate or re-deploy distribution assets exposes the investor to the risk of strategic behavior by the government, for example, effective expropriation of the assets by setting tariffs below costs.
- Secondly, concern about abuse of monopoly power means public scrutiny of profitability (even if these profits are legitimate according to regulated prices).
- Thirdly, there is the risk that the government will seek to impose below cost tariffs or unviable investments on the utility in order to seek political advantage.

The challenge for governments is therefore to design regulatory frameworks that are impartial (that is independent from capture by the various producer, consumer and political interests) and at the same time accountable for providing fair and effective regulation.

…

[39] Pankaj Gupta, Ranjit Lamech, Farida Mazhar, and Joseph Wright, *Mitigating Regulatory Risk for Distribution Privatization –The World BankPartial Risk Guarantee*, World Bank Energy and

Specifically, an investor's perception of regulatory risk will be mitigated to the extent that the content of regulation adheres to the following principles:

- A tariff regime that provides a predictable and stable trajectory of revenues, and allows for the reasonable recovery of costs.
- An impartial and timely process for re-setting retail tariff parameters, for example, performance targets (allowable losses, expansion requirements); reasonably incurred energy purchase costs; foreign exchange; and inflation rates.
- An automatic pass-through of distribution costs beyond the control of the operator.
- Regulatory commitment to provide timely approvals, for example, approval of the investment programs required by the operator to achieve performance and expansion targets.
- Predictable quality of service and technical standards.

The principal regulatory risk that a distribution utility faces is that it will not be permitted to earn sufficient revenues to cover its legitimate costs, including a reasonable rate of return. Therefore, if the regulatory rules do not enable the investor to project cash flow with reasonable certainty, or if they grant the regulator broad discretionary powers, then they are likely to be perceived as unacceptably risky.

Mining Sector Board Discussion Paper No 5, September 2002, available on the web at http://www.worldbank.org/html/fpd/energy/pdfs/mitigatingrisk.pdf, pp.2-3.

2. Extracts from Ergas et al 2001[40]

"[Increases in] the cost of attracting and retaining capital in the firm… that are caused by regulation are defined as regulatory risk. We discuss the main sources of this risk, which include the length of the regulatory period, the amount of discretion accorded to the regulator, and the diversifiability of the resulting risk. In addition, we show how symmetric errors in setting the parameters of regulatory models induce outcomes for the regulated firm that are in general asymmetric.

…for most industries, the major asset has an asset life in excess of eight times the standard regulatory period. As a result of this gap between asset lives and regulatory cycles, investors in these industries cannot secure a high degree of commitment, from regulatory authorities, about the manner in which the returns on long-lived assets will be determined.

…

We define regulatory risk through its effect on regulated firms. Regulatory risk arises when the interaction of uncertainty and regulation changes the cost of financing the operations of a firm. This definition is broad enough to include all of the important sources of uncertainty, but restricted to those for which the effect on the firm arises from, or is magnified by, the existence of regulation. Further, ***it excludes changes that induce windfall capital gains and losses except to the extent that such changes also affect the discount rates of investors*** [emphasis added].

…

[I]f long-lived assets are required to provide the regulated service, a regulatory contract of similar duration could eliminate this component of regulatory risk in respect of those assets. It is only when the terms of the (usually at least partly implicit) regulatory contract are able to be re-set before the end of the life of the relevant assets, that regulatory risk arises. In this case, regulatory risk increases with the frequency of the re-set dates.

…

The strength of the regulator's signal is influenced by the credibility of the regulator's commitment, where "credibility" in this sense refers to the rational and statistical expectation of the firm. If a regulator attempts to signal that it will allow a fair return on

[40] Henry Ergas, Jeremy Hornby, Iain Little and John Small , *Regulatory Risk, A paper prepared for the ACCC Regulation and Investment Conference, Manly, 26-27 March 2001*, Network Economics Consulting Group, http://www.necg.com.au/pappub/papers-ergas-regrisk-mar01.pdf, pp.2, 3, 6-7, 9, 14, 25.

sunk costs, but has a reputation of expropriating the surplus generated from other sunk costs, it will find it difficult to convince the firm that is will not act in this way once new funds have been sunk. The firm will recognise that history is likely to repeat itself and its future investment decisions will reflect this expectation.

If the regulator is able to credibly signal that it intends to allow the firm to recover its sunk cost, then efficient investment will be forthcoming. Regulators may be able to build their own credibility in some ways. The provision of an efficient (e.g. speedy) and consistent regulatory service to the industry would, for example, send a strong and credible signal of good intentions. The credibility in this signal derives mainly from the fact that it requires considerable effort on the regulator's part, effort that would not be expended unless the regulator really understood the value firms place on certainty.

…

Where the regulator has cross-industry jurisdiction investors pick up signals from related decisions… In Victoria, the ORG's … decision in a related market (gas) can be seen not only as a decision affecting the gas sector, but also as the ORG signalling its intentions as to its regulatory stance in its (then) forthcoming electricity distribution price review, with investors learning about the regulator's actions in that review and adjusting expectations accordingly. (p.15).

…

A common theme of the paper is that regulatory commitment reduces regulatory risk. We argued that the following factors would mitigate the impact of this risk and thereby promote efficient investment:

Speed and consistency of regulatory decision making

It is difficult for the regulator to earn a reputation for fast and consistent decisions, so this "signal" will not occur by chance. It will only occur if the regulator believes that the rapid realisation of uncertainty is valuable to firms and/or consumers. Thus, a regulator that gains such a reputation will, in so doing, have demonstrated a commitment to stability.

Broad regulatory scope

When one regulator is responsible for several sectors, informational asymmetries are reduced. The regulator's performance across sectors can be benchmarked more reliably than would be the case for an industry specific regulator. As a result, it is easier for the regulator to develop a reputation for consistency.

Long regulatory tenure

A key problem identified above is that the typical lifetime of a regulated asset greatly exceeds the tenure of regulations. Longer tenures for the key staff of regulatory offices,

and the use of controls that remain in place for longer periods both reduce the uncertainty associated with resetting regulatory parameters and changes in staff. This tenure recommendation has an additional advantage, which is to enhance the personal accountability of regulators. Given that problems arising from insufficient investment may take many years to become apparent, a regulator who expects to have a new job in a few years time may be inclined to place too much weight on the immediate benefits from lower prices. The longer they expect to be responsible, the greater is likely to be their sense of accountability.