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DEREGULATION AND MONOPOLY PROFITS IN NEW ZEALAND'S GAS AND ELECTRICITY SECTORS

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Abstract

The paper reviews New Zealand's experience with light-handed regulation of gas and electricity lines networks. The regulations included provisions for quite detailed information disclosure, and analysis of the resulting data shows clear evidence of very high-realised rates of return, compared with a competitive benchmark cost of capital. Disclosure of these large monopoly rents did not, however, trigger any official response to protect consumers from monopoly pricing, nor any curb on companies' use of an officially-sanctioned set of accounting practices which, although ostensibly based on current-cost principles, failed to account for the accrual of asset revaluation gains when calculating warranted revenues. Both industries were left effectively unregulated for most of the 1990s, and recent policy adjustments have left untouched the consequences of their virtually unchecked exercise of market power in the decade following corportization and deregulation.

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INTRODUCTION

1. Light Handed Regulation and Information Disclosure

Since the mid-1980s the New Zealand Government has radically restructured the gas and electricity industries, and experimented with a regulatory regime generically described as "light handed regulation" to restrain the exercise of market power by network operators.

Gas and electricity delivery networks are natural monopolies, and virtually all developed countries in the world except New Zealand either keep such businesses in public ownership, or have set up specialised regulators to ensure that customers pay no more than a fair and reasonable price.

Instead of regulating, New Zealand in the 1990s opted for a so-called "light-handed" arrangement under which gas and electricity distributors are required to publish details of their costs, prices and profitability. The official reasoning was that any company, which obviously exploited its monopoly power, could be punished in some (unspecified) way – and the threat of such punishment ought to keep prices in line with those that a regulator would have imposed. In 1998 the Electricity Industry Reform Act forced electricity lines companies to give up their competitive energy-trading functions, in order to enable consumers and analysts to see more clearly how the monopoly network parts of the industry behaved. (Such divestment was not imposed on gas retailers, but one of the two dominant firms, Enerco, voluntarily sold off its gas retail business and became a pure network company, in anticipation of forced divestiture.)

Each year hundreds of pages of the New Zealand Gazette are crammed with detailed financial performance data disclosed by network companies – information which, in any other country of the developed world, would be invaluable as evidence in legal proceedings to restrain monopolies from profiteering.

2. Absence of Avenues for Redress

An important part of the New Zealand reforms, however, was to remove any legal redress for consumers alleging exploitation by natural monopolies. Even with evidence of profiteering, a New Zealand consumer has nowhere to turn for redress except the polling booth. The Commerce Act 1986 eliminated the old common-law doctrine of prime necessity, so that the New Zealand courts no longer have power to hear cases in which

consumers complain of being exploited by monopolies[1]. The Electricity Complaints Commission, set up in January 2002 to respond to public disquiet about the behaviour of electricity lines businesses, is prohibited from hearing any complaints about prices.[2] A 2001 amendment to the Commerce Act required the New Zealand Commerce Commission to "set thresholds for the declaration of control in relation to large electricity lines businesses"[3], but after lengthy hearings, the Commission decided that it was not its role to engage in retrospective analysis of lines company profitability since 1993. It specifically refused to engage in retrospective analysis of the issue of asset valuations (which, as will be seen below, is crucial to identifying excess profits). The main reasons given by the Commission were, ironically, mainly to do with the alleged lack of relevant information after nearly a decade of mandatory information disclosure[4].

Meantime, during 2001-2002 the Government commissioned advice from consultants as part of a review of gas pipelines. In November 2001 it issued a set of draft decisions[5] which acknowledged that "there has been significant debate over the extent of any rent-seeking behaviour by gas pipeline owners. Some commentators suggest that pipeline owners have earned significant excess profits over a number of years. However, the measure of profits is dependent on how the assets are valued, and the "extent of any excess profits is unclear. To resolve these uncertainties, the Minister of Energy will request the Commerce Commission to report under section 56 of the Commerce Act, on whether 'control' should be introduced for gas pipelines and the inquiry is expected to take 18 to 24 months to complete."

To sum up, any network company, which engaged in abuse of its monopoly power during the decade from 1993 to 2002, faced, and still faces, no serious risk of being punished by the Courts, the Complaints Commissioner, or the Commerce Commission. Possible action by the

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1 This was established by the Privy Council decision in *Telecom v Clear Communications*, and re-emphasized by the Court of Appeal in *Vector Ltd v.Transpower New Zealand Ltd* (1999) 6 NZBLC 102,908.

2 Terms of Reference of the Electricity Complaints Commission, clause B1.5, at http://www.electricitycomplaints.co.nz/Documents/ECC%20Terms%20of%20Reference.pdf

3 Commerce Act 1986 s57G(b), inserted by the Commerce Amendment Act (No 2) 2001.

4 Commerce Commission, *Regulation of Electricity Lines Businesses Targeted Control Regime Draft Decisions* 23 December 2002 p.25 para 109.

5 Available at http://www.med.govt.nz/ers/gas/review/decisions

Minister following the planned new gas inquiry is still two years or more in the future. Both main political parties have turned a blind eye to the disclosure of excess profits, so that even the ballot box has ceased to present much of a threat.

When, for example, the country's largest electricity network operator, UnitedNetworks Ltd., disclosed a return on equity of 235% for the 2000 financial year[6] the news passed entirely unnoted by media and politicians alike. The following year the figure was 347%[7], and the year after that 125%[8], still without a flicker of interest from the authorities or the media. It is hard to imagine profitability figures of this magnitude being disclosed by the largest network company in the USA, UK, Australia, or Continental Europe, without triggering a storm of debate.

The absence of any avenue for consumer redress means that the threat of punishment for profiteering has not to date been a serious deterrent to network owners. This makes the analysis of the disclosed financial accounts of gas and electricity network companies a matter of considerable interest, since there is no presumption that their profits will have been constrained either by competitive market forces or by effective regulation.

ASSET VALUATION AND THE ESTIMATION OF EXCESS PROFITS

1. The Underlying Model

A feature of recent debate over natural monopoly in New Zealand has been the absence of consensus on the issue of how to recognize excess profits. The economics of the debate are summarised in this section.

Figure 1 presents the standard diagram for a monopolist with constant marginal cost and positive fixed costs. Short-run marginal-cost pricing at p_1 would yield the allocatively efficient quantity Q_1 but the firm would be failing to cover its fixed costs. The textbook solution is either to allow a price such as p_2 which secures a positive operating surplus ABP_1P_2 just sufficient to cover fixed costs at the cost of a deadweight loss ABC; or to introduce a two-part tariff with variable charge p_1 and a fixed charge equal to the rectangle ABp_1p_2 (Coase 1946).

The central issue in the excess profits debate is how big the rectangle ABp_2p_1 would have to be to give the monopolist a fair and reasonable return but no more. Note that the area of the rectangle is the product of the price-cost margin (p_2-c) times the volume of service, Q_2.

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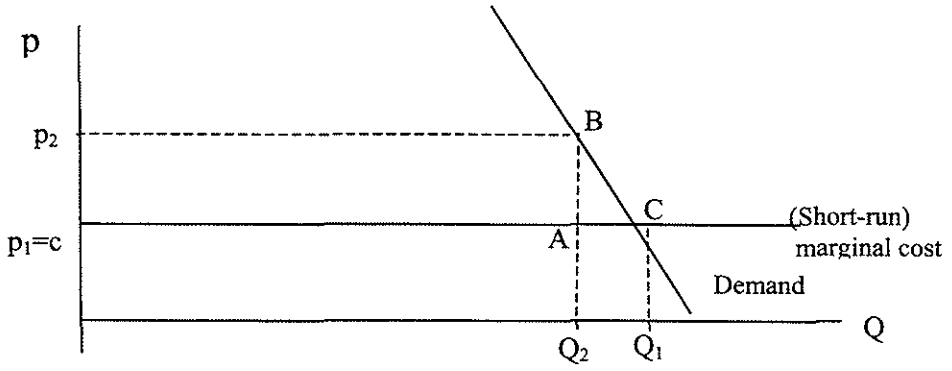
6 *New Zealand Gazette* 2000 No 111 p.2807.
7 *New Zealand Gazette* 2001 No 104 p.2665.
8 *New Zealand Gazette* 2002 No 122 p.3272.

The pricing behaviour of the monopolist is captured by the equation[9]

$$\frac{p - v}{p} = -\frac{1}{\varepsilon} + (r + \delta)\frac{p_k K}{pQ}$$

where p is price, v is average variable cost, ε is the elasticity of demand, r is the financial rate of return on capital, δ is the depreciation rate, K is the monopoly's physical stock of fixed assets, Q is the monopoly's output, and p_k is the value of a unit of capital assets. The equation states that the proportional price-cost markup, on the left hand side, is limited (from above) by the demand elasticity, which reflects the extent of the monopolist's market power, and (from below) by the proportion of revenue required to service capital costs.



A traditional rate-of-return regulator sets $\varepsilon = \infty$ to mimic competitive market conditions, and then sets appropriate values for r, δ and $p_k K$ (the ratebase). These values are set *ex ante* and yield the minimum price-cost markup consistent with financial sustainability at the predicted level of output Q.

In the absence of a regulator, the profit-maximising firm can engage in "limit pricing", setting p just below the level at which entry would be profitable for a competitor. One way of thinking about this is to note that below the limit price the demand elasticity ε is very low since customers are captive; but at the limit price in the long run $\varepsilon = \infty$ because the network can be bypassed by a new entrant, resulting in socially wasteful duplication of facilities.

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[9] Carlton, D. and Perloff, M, (2000) p.246 equation 8.4.

(In the late 1990s there were a series of successful carefully-targeted bypasses of gas distribution networks in New Zealand, reflecting an apparent tendency of incumbent firms to overestimate the true limit price. The firm responsible for the bypass projects, Nova Gas, was a gas retailer competing with the incumbent network owners, which found itself unable to secure access prices from those incumbents that matched the bypass cost. Having learned from its early experience of trying to negotiate access to the incumbent network monopolists in Wellington, Auckland, Hastings and Hamilton, Nova conducted a series of carefully targeted raids on key industrial and commercial agglomerations within the incumbents' territories. Having signed up five-year retail contracts with a critical mass of customers in each of the targeted areas, Nova installed new distribution pipelines from the transmission system at a very rapid pace, sometimes catching the incumbents off-guard. In one memorable case, the incumbent supplier's first notice of having been bypassed was a sudden drop in offtake at the relevant meter in the middle of one night, as the customer switched over to the bypass supply. Nova's initial success quickly led network operators to set their access prices more carefully to pre-empt further bypass.)

Having pushed p to the market limit, the unregulated firm maximizes profit by minimizing variable cost v. Given the ratebase $p_k K$ and a conventional depreciation schedule, the realized rate of profit is revealed by the value of r which solves the above equation.

This, in a nutshell, is the logic that underlay information disclosure in New Zealand. The intention was to establish threshold values of $p_k K$ and δ and to require disclosure of pQ, p, and v. Observers could then notionally set $\varepsilon = \infty$ as a competitive benchmark and derive the realized value of r, which could be compared with competitive market rates of return on capital. Excess profits would be the amount by which r, thus calculated, exceeded the weighted average cost of capital (WACC).

The outcome of the above calculation hinges on the methodology used for regulatory purposes to assign a value to p_k - that is, to attach a ratebase value to network capital assets. The choices are familiar. In ascending order of magnitude, they are as follows:

- A "net realizable value" methodology sets p_k equal to the transfer earnings of each item of capital, so that the current "cost of capital" is the amount that must be paid to the firm to induce it not to exit the sector. When assets are long-lived and their sunk cost cannot be recovered by re-sale, this methodology simply assigns scrap value to the assets.

- An historic cost methodology sets p_k equal to that part of the original cost of each asset which remains undepreciated; here the "cost of capital" is the amount that must be paid to the firm today to satisfy, *ex post*, the legitimate expectations of the original investors.
- A replacement cost methodology sets p_k equal to the amount that would have to be paid today to acquire and install equipment yielding the same service potential as the actual assets; the cost of capital here sets the theoretical benchmark at which competition for the market would in principle become feasible in the absence of non-price barriers to entry.
- A discounted cash flow (DCF) methodology values the assets at their worth to an arms-length purchaser who pays for the expected future stream of profits. $p_k K$ in this case is a top-down aggregate valuation, which in the absence of a regulator reflects the profit implications of charging the limit price in the relevant market.

Beginning with the last of these, it is trivial that if $p_k K$ is set at DCF, the excess-profits calculation outlined above will reveal a competitive rate of return on the sharemarket value of the firm, because the sharemarket will have valued the enterprise on the basis of its predicted cash flows – the exercise is entirely circular, and information disclosure on this basis is pointless as a discipline on natural monopoly.

Under conditions of perfect contestability, the threat of new entry would in theory drive the DCF value of fixed assets to equal their replacement cost. Hence, requiring disclosure of a replacement-cost asset valuation figure means that the firm can report a competitive rate of return only if it limit-prices as it would do under full contestability. Excess profits are then any return on assets that is attributable to the firm sheltering behind barriers to entry that enable it to recover more than a competitive rate of return on the depreciated replacement cost of its fixed assets. (This has been the New Zealand Government's approach to date.)

Regulators in the USA since the *Hope* decision of 1944[10], and in the UK since the mid-1980s privatizations, have adopted variants of the historic-cost approach, starting from the value of the fixed assets at the date at which the assets were either installed new, or were transferred into the hands of commercial operators by privatisation or corportization. (This institutionally-defined starting value is often called the "vesting value".) p_k is then historically grounded in the past, reflecting vesting

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[10] Federal Power Commission v Hope Natural Gas Company, 320 U.S. 344 (1944).

value plus subsequent capital expenditure, net of accumulated depreciation. Excess profits are any return over and above a competitive return on the resulting ratebase.

Generally speaking the net realizable value approach is not used for ratebase purposes because it involves effective expropriation of shareholder wealth and thereby may deter future investment.

2. Changing the Ratebase Accounting Rules in Asset Mid-Life

At the beginning of the deregulation process in the early 1990s, New Zealand's gas and electricity networks were priced on the basis of a well-established set of historically-grounded practices. Electricity lines networks were owned by quasi-public bodies ("electricity supply authorities") mostly created under the Electric Power Boards Act 1918. Accounts were kept on a cash basis and assets were carried on the books at depreciated historic cost with no adjustment for inflation. A considerable part of past outlays on fixed asset acquisition had been expensed (effectively short-circuiting the amortization process). Both prices and asset values were consequently well below the level that would correspond to a replacement-cost ratebase, but the ESAs had always had the power to raise prices as required to underwrite new investment outlays as these became necessary. With the ESA boards elected by electricity consumers in the respective market territories, the outcome was that network prices were set as low as feasible, subject to the constraint that current cash revenues be adequate to meet current cash outlays.

When the ESAs were corporatised and the information disclosure regulations drafted, a current-cost-accounting philosophy abruptly replaced the old package of cashflow accounting and historic-cost valuation. The Electricity Industry (Information Disclosure) Regulations 1994 required p_k to be set for disclosure purposes at the optimised depreciated replacement cost of the assets, while K was to be established by a comprehensive physical asset inventory. The resulting asset valuation was given the grandiose title Optimised Deprival Value (ODV) and the formula for its calculation included provision for write-downs in K on any network segment which faced insufficient demand to recover the revenue warranted by the ODRC asset value.

The tension between the old and the new ratebase concepts is readily apparent. The ODV valuation for a typical electricity network at 1994 was double or more the corresponding historic-cost figure. Any speculator who could acquire network assets at book value at the date of corportization, and then re-sell later at a replacement-cost book value, stood to make a sizeable capital gain. For consumers, the switch to the light-handed

regulatory regime presented the prospect of having to pay rapidly-growing monopoly rents to speculative investors acquiring and holding the businesses for capital gain. Not surprisingly, the corportization of all ESAs which the Government forced through by Act of Parliament in 1992-93 produced heated political and legal battles on two fronts: the book value at which the assets were to be vested in the new corporate entities, and the identity of those new owners – especially if assets were vested at historic cost with no regulatory restraint on their subsequent revaluation to replacement value for ratebase purposes.

Regarding the vesting values, the original intent of Government was to revalue the assets sharply upwards before vesting[11], but political opposition to this was intense, both from consumers facing higher prices and from speculators wishing to secure control at the old book value and appropriate to themselves the gains from subsequent revaluation. The following description of the outcome comes from evidence to the 2002 Commerce Commission hearings on electricity lines business asset valuation methodology:

> As vesting date approached, the Minister of Energy became increasingly nervous about potential future price increases arising from the corportization process, and due to political pressure, reversed his earlier views and publicly stated historical cost values were to be used for vesting purposes, not market value. For example: *"Mr Luxton said the Energy Sector Reform Bill would not force the new power companies to increase their prices." ... "Mr Luxton also announced assets of ower boards and MEDs would be transferred to new power companies at book value, rather than at market value."* [12]

With the assets corporatized at their low historic-cost values, but with the regulatory ceiling pitched to coincide with the limit price for a contestable monopoly, consumers' only defence against price gouging thereafter was to prevent control of the businesses from falling into commercial hands. After intense lobbying, politicking and litigation, the

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11 Joint Media Release by the Ministers of State Owned Enterprises and Energy, "Electricity Distribution Accreditation Panel Appointed", 27 June 1991, cited in PriceWaterhouseCoopers, *Supplementary Submission to Commerce Commission on Electricity Line Businesses Asset Valuation Methodology Discussion Paper*, December 2002, p.4.

12 PriceWaterhouseCoopers, *Supplementary Submission to Commerce Commission on Electricity Line Businesses Asset Valuation Methodology* Discussion Paper, December 2002, p.4.

majority of ESAs were therefore vested not in normal corporate entities with tradeable share capital, but rather in the hands of consumer trusts whose shares remained tightly held to keep the new monopoly rents in the hands of the local consumers. This entirely rational determination by consumers to use trust control to lock up the assets of the new entities at corportization effectively subverted the ostensible purpose of corportization itself, which was to bring capital-market disciplines to bear via mergers and acquisitions.

OUTCOMES: NETWORK PROFITABILITY 1994-2002

1. Electricity

This section summarises the results from several recent studies of electricity distribution lines businesses[13]. The analytical standpoint is that of a traditional US or UK regulator. Initial asset values are set equal to the value at which each network was transferred from ESA control into the control of the new corporate entities in early 1994.

The first study analysed the aggregated results of the 32 electricity lines companies created in 1993-94. Disclosed information was used to conduct an Internal Rate of Return exercise covering the period from corporatization in 1994 to 2000. Table 1 gives the total book value of the fixed assets of lines companies at March of each year from 1992 to 2000, together with operating surplus, all expressed in real terms at 1999 March-year dollars using the PPI (Inputs) deflator.

The book value of all lines company fixed assets was about $2 billion at the time of the transfer of those assets from the former electric power boards and MEDs to the new corporate entities in 1993. By 1999 book value had doubled, to $4 billion[14]. By far the greater part of this increase was due to unilaterally-declared asset revaluations from historic vesting value up to replacement cost. To estimate the IRR, imagine that a hypothetical investor had purchased the entire sector for its collective book value at March 31 1994, collected the actual gross pre-tax operating surplus year by year until 1999, and then sold out for the book value as at March 2000.

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13 Bertram and Terry 2000.

14 For the March year 1999 the total Optimised Deprival Value of lines businesses recorded in the Information Disclosure Statistics was $4.287 billion. The lower figure in Table 2 reflects the fact that not all lines companies were yet carrying their fixed assets at full ODV in their financial reports as prepared for disclosure purposes.

Table 1: Electricity Lines Companies Aggregated Data

Years ending March	1992	1993	1994	1995	1996	1997	1998	1999	2000
Real disclosed book value $ million	1,911.2	1,893.8	2,299.3	2,755.1	3,019.1	3,480.0	3,709.5	4,028.5	4,257.5
Revenue $ million	764.7	806.7	794.1	798.8	845.3	895.2	959.0	963.5	952.7
Real operating Costs excl depreciation	465.9	474.5	452.9	430.0	432.4	415.4	526.1	408.0	331.6
Operating surplus	298.8	332.1	341.2	368.8	412.9	479.8	432.9	555.5	621.0
Price-cost margin %	39.1	41.2	43.0	46.2	48.8	53.6	45.1	57.7	65.2
Real depreciation	100.6	98.0	0.0	98.3	109.5	122.6	141.9	143.3	158.5
Real net surplus pre-tax	198.2	234.1	341.2	270.5	303.4	357.2	291.0	412.2	462.6
Net surplus % of disclosed book value	10.4	12.4	14.8	9.8	10.0	10.3	7.8	10.2	10.9
Cashflow stream 1993-2000:			-2,299.3	270.5	303.4	357.2	291.0	412.2	4,720.1
Internal Rate of Return, real, pre-tax, 1994-2000	22.4%								

The industry-wide pre-tax real IRR for 1994-2000 emerging from these figures is a rather startling 22.4% real over the seven-year period. The result depends heavily on the closing book value - that is, on the revaluation of assets from historic cost to ODV by the industry, with official encouragement.

The sector-wide price-cost margin increased from 39% prior to corportization to 65% by 2000, as average operating costs fell 42% and average revenue per kWh transported rose 48%. The sector-wide Lerner index of market power rose from 0.35 in 1993 to 0.72 by 2002. However,

the simultaneous ramping-up of the book value of assets meant that the rate of return calculated by dividing net surplus by book value did not rise at all. The accounting practices utilized by electricity network operators, approved by their auditors, and accepted by Government officials, allowed companies to unilaterally write asset revaluations into their book values, with no record of the resulting windfall income in their profit-and-loss accounts, and hence with no requirement to subtract revaluation gains from warranted revenue when setting their prices. (Most other jurisdictions either require revaluations to be taken into account when calculating warranted revenue, or prohibit asset revaluations entirely, as is the usual US practice.)

Table 2 summarises a recent case study of New Zealand's largest electricity network company, UnitedNetworks Ltd[15]. In 1994 when the network assets were transferred to the eight new companies which later merged to form UNL, they had a combined book value of $477 million. By 1998 they had been written up to a $1.1 billion replacement-cost valuation for information-disclosure purposes. (The value recorded in UNL's annual reports to its shareholders continued to rise to around $1.5 billion by 2002, reflecting the DCF market value of the unregulated business[16].)

From 28% in 1994, the price-cost margin had risen to over 80% by 2002, on the back of only slow volume growth (25% increase in volume over the eight years 1994-2002). Tax paid remained virtually stationary from 1994 to 2001, partly because of rising depreciation allowances due to increased asset valuations. (New Zealand does not tax capital gains of the sort described here.)

The internal rate of return for the UNL group of companies was 23% nominal pre-tax over the eight years 1994-2002, assuming entry and exit at ook value. The weighted average cost of capital for electricity network operators in New Zealand has recently been estimated at around 7%.[17]

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15 In 2002-2003 the US owners of UNL sold out to Vector Ltd and Powerco Ltd, two New Zealand-owned network companies, realising in the process large untaxed capital gains on their original investment.

16 UnitedNetworks Ltd *Interim Report for the Period to 30 June 2002* p. 7 shows the value of fixed assets (including gas as well as electricity networks) at $1,366 million and "intangibles" (mainly goodwill embodied in the purchase price of those assets) as $763 million, a total of $2.1 billion of which at least $1.5 billion is here estimated to correspond to electricity.

17 Lally, M., *The Weighted Average Cost of Capital for Electricity Lines Businesses*, report to New Zealand Commerce Commission, January 2003, p.50.

Table 2: Disclosed Financial Performance of United Networks Ltd and its Predecessor Companies, 1990-2002

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Revenues of the network business $m	137.8	152.8	163.2	185.8	180.1	194.4	205.4	236.6	246.8	164.5*	284.0	289.9	310.6
Operating expenses $m	109.9	113.7	126.7	135.4	128.9	103.4	92.5	99.1	65.8	70.6	64.9	63.5	61.0
Gross Operating Surplus $m	27.9	39.1	36.6	50.3	51.2	91.0	112.9	137.6	181.0	93.9	219.0	226.4	249.6
Price-cost margin %	20.2	25.6	22.4	27.1	28.4	46.8	55.0	58.1	73.3	57.1	77.1	78.1	80.4
Depreciation $m	18.7	19.7	20.8	21.6	25.7	26.6	35.7	39.4	43.6	27.1	42.5	42.9	45.1
Net operating surplus $	9.1	19.4	15.8	28.8	25.5	64.4	77.2	98.1	137.5	66.8	176.6	183.5	204.6
Reported tax expense	8.1	11.2	11.0	19.9	24.4	25.4	27.2	28.6	25.1	28.9	26.3	26.7	40.0
Electricity volume GWh	5.5	5.6	6.2	5.6	5.9	5.8	6.5	6.7	6.7	6.3	6.6	6.7	7.3
Average revenue cents/kWh	2.5	2.7	2.6	3.3	3.1	3.4	3.2	3.5	3.7	2.6	4.3	4.3	4.3
Average operating cost cents/kWh	2.0	2.0	2.0	2.4	2.2	1.8	1.4	1.5	1.0	1.1	1.0	0.9	0.8
Fixed assets book value as disclosed	461	474	401	420	477	733	761	1,076	1,120	1,123	1,059	1,092	1,088
Regulatory ratebase on DHC basis					477	491	494	536	607	659	677	706	711
Net operating surplus as % of disclosed book value	2.0	4.1	3.9	6.9	5.3	8.8	10.1	9.1	12.3	5.9	16.7	16.8	18.8
Net operating surplus as % of regulatory book value	2.0	4.1	3.9	6.9	5.3	13.1	15.6	18.3	22.6	10.1	26.1	26.0	28.8
Capital expenditure $m	33.7	38.9	31.4	51.1	21.9	38.5	38.2	81.8	114.4	100.0‡	59.8	69.1	49.1
Internal Rate of Return 1994-2002	23%												

NOTES:

* Because of a loophole in the information disclosure regulations, revenue for certain companies acquired during the 1999 financial year were excluded from the disclosure accounts, which therefore greatly understate revenue for this year.

‡ Estimated.

2. Gas Pipelines

Another recent study (Bertram, Dempster and Terry 2001) examined the financial returns secured by New Zealand's two main gas pipeline operators Enerco (now United Networks) and Natural Gas Corporation (NGC) over the period from 1992 (when the industry was deregulated and both companies changed hands) to 2001. The main source of information was the companies' annual reports, supplemented by information produced for years from 1997 on under the Gas Industry (Information Disclosure) Regulations 1997.

Enerco New Zealand Ltd emerged from the 1992 restructuring of Welgas Holdings Ltd, a holding company through which Brierley Investments Ltd had built up a major position in the gas industry comprising distribution networks in Wellington, Auckland, and Hawkes Bay. The historic-cost book value of fixed assets was $56 million at June 1990[18]; by December 1991 this had been raised to $77.5 million, mainly by revaluations of existing assets. This book value of $77.5 million was effectively the asset base purchased by investors taking up shares at the float in April 1992 at the offer price of $1.35 per 50-cent share.[19]

The subsequent evolution of Enerco's gas distribution and retail business was rapid. Over the first six years to 1998 the length of pipelines increased by 77% and customer numbers doubled, partly through acquisition in October 1993 of Progas (the former Palmerston North City Council Gas Department) and partly through increased market penetration, including a major new mains pipeline to serve the Albany area. Gas volume rose only 30%, reflecting the fact that expansion was concentrated at the small-customer level. Meantime revenue rose 75% while operating costs rose only 55%, and the book value of fixed assets trebled, mainly through revaluations rather than new construction. Deregulation of the industry was thus followed by a major increase in Enerco's long-run

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18 Offer Memorandum.

19 Enerco *Annual Report 1992* p.2. The successful issue of 56 million shares at $1.35 valued the company at $75.6 million.

profitability, and hence in the value of the business to a purchaser. Of particular significance is the extent to which revenues outstripped operating costs, causing operating surplus to rise steeply; this increased surplus made a substantially increased asset valuation sustainable.

In the two years following 1998 a further restructuring was undertaken by Orion, as Enerco's main shareholder[20], to extract the value which had been added to the business in the first six years after deregulation. Gas trading was separated from the pipeline networks and the businesses were sold separately: gas trading and the retail customer base to Contact Energy for $110.7 million[21], and the pipeline networks to UnitedNetworks for $550 million.[22]

Thus a gas pipeline and retail business which had a market value of $77 million in early 1992 was sold eight years later in early 2000 for a total of $660 million. Along the way $110 million had been spent on purchases of fixed assets (including replacement investment to make good wear and tear), and $32 million on the acquisition of Progas.

The realised capital gain on Enerco as a speculative investment prospect was between $450 million and $500 million over eight years. This capital gain was recorded in three processes of asset revaluation. In March 1994 an ODV valuation added $82.1 million to the book value of fixed assets as recorded in Enerco's revaluation reserves. In March 1997 a second ODV revaluation added another $58.4 million. Finally in April 2000 the sale of pipelines with a book value of $280.4 million[23] for $550 million realised another $270 million of capital gains, to which must be added approximately $110 million from sale of the retail gas customer base.

In Table 3 the basic data for calculating Enerco's profitability are arrayed.

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20 Orion, under its earlier name Southpower, purchased a controlling stake in Enerco in October 1993, to enable Enerco to fight off an NGC takeover attempt. A one-for-three rights issue to existing shareholders, at $2.80, was undertaken in November 1993. Southpower subsequently bought NGC's 19% stake in Enerco. By 1999 Orion held all of the shares.

21 $100.5 million for small customers in late 1998, plus $10.2 million for industrial customers in April 2000.

22 *New Zealand Gazette* 21 August 2000 Issue 99 p.2487; Orion *Annual Report* 2000 p.8.

23 *New Zealand Gazette* 21 August 2000 p.2487, "Fixed assets held for sale".

Table 3
Financial Performance of Enerco/Orion Gas Networks Business

Period to	June 1992	June 1993	March 1994	March 1995	March 1996	March 1997	March 1998	March 1999	March 2000
Operating revenues $m	112.8	118.1	95.7	154.2	168.5	190.0	209.0	203.7	113.3
Operating expenses $m	94.8	98.6	80.8	127.5	132.1	149.2	147.2	136.1	79.9
Gross operating surplus $m	18.0	19.5	14.8	26.7	36.4	40.8	61.8	67.5	33.4
Price-cost margin %	16.0	16.5	15.5	17.3	21.6	21.5	29.6	33.2	29.5
Depreciation expense $m	5.1	4.8	3.7	8.8	9.2	10.1	11.9	10.3	10.0
Net operating surplus $m	12.9	14.6	11.1	17.9	27.2	30.7	49.9	57.2	23.4
Reported tax expense $m	4.5	2.4	3.1	8.0	10.0	9.8	13.2	14.4	10.5
Gas volume, PJ	14.2	14.4	11.1	17.1	17.3	17.2	16.6	15.9	16.4
Average revenue, cents/GJ	7.9	8.2	8.6	9.0	9.7	11.0	12.6	12.8	6.9
Average operating cost, cents/GJ	6.7	6.8	7.3	7.4	7.6	8.7	8.9	8.6	4.9
Book value of fixed assets $m	76.8	77.4	203.0	201.8	205.0	288.6	312.2	285.5	280.9
Book value excluding revaluations	76.8	77.4	120.9	119.7	122.9	148.1	171.7	145.0	140.4
Net operating surplus as % of disclosed book value	16.8	18.9	5.5	8.9	13.3	10.6	16.0	20.1	8.3
Net operating surplus as % of "regulatory" book value	16.8	18.9	9.2	15.0	22.1	20.7	29.1	39.5	16.7
Capital expenditure $m	1.5	4.4	3.5	6.9	12.0	35.3	35.4	16.5	12.7
Internal rate of return 1992-2000	31.6%								

The other major gas pipeline business, Natural Gas Corporation, was originally set up in 1967 as a state-owned venture to undertake the treatment and transmission of Kapuni gas. In the course of the 1980s, branching out from its dominant position in transmission pipeline operation, NGC established itself in gas distribution and retailing. In 1988 NGC was privatised by sale to Fletcher Challenge Ltd, which embarked on a four-year restructuring process culminating in the floating of NGC on the sharemarket in September 1992.

The estimation of an IRR for NGC was complicated by the complex financial structure of the company, which had a large amount of outstanding debt in 1992 and issued its new securities in a mixture of shares and convertible capital notes. The result based on NGC's cashflow statements is 16.3% real post-tax, again a high figure relative to a competitive benchmark.

POLICY IMPLICATIONS

The rates of return emerging from successive studies of major New Zealand network operators since deregulation lie consistently above a normal competitive level. The light-handed regulatory framework lays stress on the supposed effectiveness of information disclosure in inducing monopolistic industries to self-regulate under the threat of regulation. The publication of the studies summarised above, however, has to date caused barely a ripple on the policy pond. Insofar as there has been any official response to unfolding estimates of high profitability, it has been to seek to justify rather than to regulate it.

Partly this is because the New Zealand Government in the 1990s committed itself to contestability theory as the basis for regulating natural monopolies. Policy has been based on the assumption that under perfect contestability, the limit price is the optimal price from a social as well as a private standpoint, whence Government has offered no regulatory protection to consumer interests beyond a general commitment to take some unspecified action if prices rise above the limit price.

Partly also it seems that the officials and ministers responsible for key policy decisions were not well-informed about the consequences of changing the asset valuation methodology of a natural monopolist in mid asset life. The absence of a capital gains tax on business assets has meant that the New Zealand tax authorities do not scrutinize declared book values; and the accounting profession has issued successive standards of "generally accepted accounting practice" which allow revaluation gains to be recorded in reserves with no corresponding entry in the profit and loss accounts, including P&L accounts prepared for regulatory disclosure

purposes. Auditors and officials have then approved without question the ostensibly-low rates of return disclosed over the period when asset valuations were doubled from historic-cost to replacement-cost, and when this inflation of the ratebase was used to justify a matching increase in prices and operating surpluses. The best defence offered by official sources at the time was a sweeping claim that replacement-cost valuation of assets was the only "economically-correct" way to construct a ratebase; this argument in turn required wholehearted acceptance of unqualified contestability theory, combined with complete indifference to the impact on consumers of a doubling of ratebase values with no temporary cut in warranted revenue to protect consumers from a wealth transfer to the network companies.

In effect, the New Zealand Government, in designing its new regulatory regime in the 1990s, simply overlooked Hicks' long-standing dictum that asset revaluation gains are income. Some advisors to Government clearly understood this basic principle of current-cost accounting[24], with the result that the disclosure regulations provided for publication by each company of several accounting rates of profit one of which was inclusive of revaluations. The officials responsible for interpreting these disclosed rates of return, however, were easily persuaded to ignore one-year "spikes" as revaluations were taken into book value; these officials either did not understand the significance of the data, or had been instructed to take no notice of revaluation windfalls.

One reason for Government's repeated failure to restrict monopolistic rent-taking under cover of ratebase revaluations was the fact that New Zealand's light handed regulatory model relied on sanctioning offenders after they had collected excess profits, when Government had strong incentives to look the other way and avoid the intensive lobbying and other forms of political pressure that would have been triggered by any attempt to limit corporate profits. The threat of heavier regulation, which was supposed to provide the incentive for the electricity and gas industries to self-regulate, lacked credibility because once Government was actually confronted with monopolistic behaviour, its incentives were to back off rather than intervene. The utility industries, being aware of this, continually tested (and continue to test) the boundaries of official tolerance. The sharemarket up until 2003 continued to value network industries on the basis of a clear expectation that they would remain effectively unregulated.[25] Some recent policy statements may point

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24 See, for example, Ernst and Young 1994, which included revaluation in the so-called "accounting rate of profit" to be disclosed by lines businesses.

25 See "Lines and Runways Best Investments", Evening Post (Wellington, New Zealand) 26 February 2002.

towards a tightening of regulatory requirements[26], and possibly the eventual imposition of forward-looking price controls, but there has never been any prospect of Government retrospectively clawing-back, on consumers' behalf or for consumers' benefit, the monopoly rents of the 1990s.

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26 Since 2000, stronger official rhetoric and some statutory amendments to make regulation possible again have not been followed by convincing action; on the contrary, in the case of airfield landing charges ministers refused to impose regulation even when advised to do so by the Commerce Commission; in the case of electricity networks the Commerce Commission refused to review post-corportization valuation and pricing practices on a retrospective basis; in the case of gas pipelines the Commission is conducting (as of early 2004) an inquiry under terms of reference which explicitly exclude consideration of wealth transfer from consumers to recommend unbundling of the local loops owned by the incumbent dominant firm, Telecom NZ Ltd.

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