

In this chapter we explore the history of contemporary electricity reforms in New Zealand, focusing on issues of policy and reform objectives, regulation, ownership, and structure. It is suggested that New Zealand has enjoyed a unique capacity for reforms not shared by other countries, but that it has not uniformly exploited its advantages in implementing reform. Its outcomes have, as in other countries, been mixed, although New Zealand has avoided certain fundamental errors that in at least one notable case, that of California, resulted in outright disaster. No reforming jurisdiction, including New Zealand, can claim to have implemented a perfect or complete reform process. The question remains as to whether New Zealand's reform path has positioned it well for ongoing developments in the sector, or whether the future enhancements will be unduly difficult to achieve because of earlier wrong turns.

We begin with a brief discussion of the origins of electricity in New Zealand, and how its provision quickly became the exclusive purview of government. The 1980s reforms of electricity are summarised, focusing on the corporatisation of ECNZ under the State-Owned Enterprises Act 1986, early reform objectives, and the 1989 Electricity Task Force Report. Any break-up of the monolithic ECNZ necessitated measures to encourage competition in generation, such as the separation of transmission from generation, and development of a wholesale electricity market. Two major studies, WEMS and WEMDG, provided impetus for the latter, beyond that of the 1991 pricing showdown between ECNZ and the then National government.

The electricity industry progressed reasonably independently in the early 1990s until the June 1995 reforms pushed the issue of ECNZ separation, spawning the birth of Contact Energy and enabling the wholesale electricity market to begin in earnest. They also set the scene for a rapid industry realignment, following controversial 1998 reforms forcing the separation of distribution from competitive activities such as energy retailing and generation. These reforms – now at the distribution end of the industry – followed the ownership and organisational reforms of 1990 and 1992, opening up traditional ESA supply franchises to retail-level competition. While such competition was initially slow to emerge, it quickly gained pace after the 1998 reforms, which also resulted in measures to enable customer switching.

New Zealand's implementation of light-handed regulation – relying on competition and disclosure rather than heavy-handed industry control – is critiqued. Following a change of government in 1999 and the 2000 industry inquiry, it was soon replaced with explicit regulation that was based on questionable arguments. With major reforming legislation in 2001, rapidly followed by more extensive reforming legislation, industry control has passed to a new Electricity Commission with wide regulatory discretions. Despite these powers, the Commission faces external challenges which will prove hard to surmount. Its advent marks a turning point in New Zealand's reform process.

INTRODUCTION

International Context

It is not possible to directly compare New Zealand's reform progress with those of other countries since the nature and pace of reform has generally been dictated by each country's idiosyncratic historical, political, social, physical, and economic environments. Despite overlaps in broad objectives, no two countries' reforms have been the same, and even within countries (such as Australia) marked differences in reform agendas and processes can be discerned. Later reformers certainly owe a debt to earlier reformers, and valuable lessons have been learnt by observing reform processes around the world, but in the main each country has embarked on a process of trial and error informed by evolving understandings of both theory and practice.

Domestic Context

It is useful to consider the contemporary reform of the New Zealand electricity sector not only in the context of reforms such as those described for other countries in Chapter 4, but also against the New Zealand environment leading up to the reforms. Once ranking in the upper echelons of OECD economic comparison, by 1984 the country's fortunes had dramatically changed. As summarised in Evans *et al.* (1996), in the decade to June 1984 net public debt rose from 5% of GDP to 32%, annual inflation was in double digits except for the last part of this period (and only then because of an imposed wage and price freeze), and the unemployment rate had risen from 0.2% to 4.9%. By the end of this period the current account deficit in the balance of payments had risen to 8.7% of GDP, and the government's financial deficit stood at 6.5% of GDP. GNP per capita had fallen from 92% of that in the US in 1938, to around 50%.

But these were merely symptoms of a more deep-seated malaise. By 1984 the New Zealand economy was highly protected, regulated, centrally administered, and heavily taxed. Agricultural production was subsidised, domestic industry protected by various instruments including high tariffs on imports and foreign exchange controls, and all manner of activity was subject to distortionary and often-times *ad hoc* regulation. The playing field was heavily fenced, full of bumps, and tightly controlled. Resulting inefficiencies in the private sector were reflected in their government counterparts, with considerable taxpayer investments in a range of sectors showing little or no financial return as well as poor service delivery. Both financial and labour markets were also tightly and centrally regulated.

Existing Arrangements Unsatisfactory

By 1985 it was apparent that in terms of generation, at least, these arrangements were not performing well. As noted in the Ministry of Energy's review in 1984, the Electricity Division's performance measurement was complicated by electricity pricing being set externally, it paid no tax, it required considerable capital, and its "essential nature" and

“monopoly role” made it a target for industrial action. The review further noted that because the Division was an essential part of the country's infrastructure, it could influence the scale and direction of economic development, thus attracting political and economic attention.

A 1985 Treasury review of electricity planning and electricity generation costs made especially sobering reading. Noting the significant share of the country's total investments represented by the electricity sector, the report found that prevailing arrangements were failing to deliver electricity in New Zealand at lowest practicable cost – the driving policy of the day. Over-investment in generation arose from systematic and gross over-estimates of demand growth, ranging between 33% and 51% for the periods considered. Projects were characterised by commissioning delays, large cost over-runs and electricity production costs well in excess of those predicted (at times up to 100% higher). It was even found that generation investments were not undertaken on a cheapest-first basis, whether using simple or more refined investment selection rules. Aside from the general need to reform New Zealand's state trading enterprises, electricity was especially in need of change.

Similar concerns were highlighted in a 1987 Audit Office report, which noted delicately that “one could conclude that the money committed [to new hydro generation projects 1977–1984] may have been better utilised elsewhere for the benefit of the nation”. The report also noted that the economic criterion for construction of new generation was not adjusted downwards despite major reductions in electricity demand growth forecasts – in other words investment was made in projects that were uneconomic even given available revised forecasts. It further criticised governance arrangements surrounding loans for these schemes, where the Crown offered Supplementary Operating Loans to ESAs, thus assuming all financial risks with the individual schemes despite there being no financial or time limits placed on the availability of these loans.

It can only be surmised whether similar inefficiencies occurred at the distribution and retailing level, as scant operational data for this period are available, commercial performance standards were not mandated or utilised, and performance appraisals were not apparently required. The electricity system of the time would appear to have been driven by political (central and local government), engineering and labour imperatives as much as by the interests of taxpayers and electricity consumers.

HISTORICAL BACKDROP

While New Zealand's electricity system is geographically isolated from those of other countries, it shares large parts of the thinking applied in its counterparts elsewhere. In its structure and operation it was, at the commencement of the contemporary reform process, not unlike electricity systems in countries such as England or Australia, with government ownership and pricing and investment decisions centrally driven by multifarious objectives

and interests. At the heart of the reforms was dissatisfaction with the performance of such arrangements, a need to reduce government budget deficits and a desire to inject market disciplines (and capital) into the activity and evolution of the sector.

New Zealand was no laggard in the development of its electricity system and the institutions that govern and affect its operation. Reflecting its pioneering beginnings with European colonisation in the nineteenth century, from the mid-1880s industrial concerns such as flour mills and a gold-mining crusher (a world first), and small communities needing street-lighting, were early-adopters of the new energy.¹ As the nation developed and demand for electricity grew, the potential for transmitting electricity generated using the country's many lakes and rivers to its major population centres led to the development of a national transmission grid. At the same time local distribution grids were developed to ensure that even rural users distant from population centres could be supplied, reflecting the importance of the new energy to the development of the country's agricultural base. As a nation we were able to boast a number of "firsts" in the electricity sector, such as the world's largest high-voltage direct-current (HVDC) link, and the then largest earth dam in the southern hemisphere (Benmore, located in the South Island and operational from 1968). Since its beginnings, electricity has undergone a sequence of paradigm changes that reflect the state of the technology in generation and distribution, and political and economic institutions and notions.

Although the innovations often began with the endeavours of individuals or private concerns, the development of New Zealand's electricity system quickly became the concern of local government, and soon afterwards of central government. With the passage of the Water Power Act 1903, government reserved the sole right to itself to use water for generating electricity, or to grant the right to others, thus creating a state monopoly on future hydro-generation developments. The first major state hydro scheme, Coleridge, was completed in 1914, almost 30 years after the first major private hydro development at Bullendale. Funding and coordinating the large-scale development of hydro-electric power schemes was deemed a national priority, and bringing together dispersed electricity generators and consumers through a nationwide transmission grid resulted in central government ownership and control of New Zealand's generation and transmission capacity (with distribution assets remaining in local government control), including through the state's acquisition of private generation.²

The focus in New Zealand was for a long time the ongoing development of an electricity sector that could meet the growth in electricity demand arising as a consequence of strong growth in the national economy. Eventually, however, and perhaps as a consequence of central government control of generation in particular, it became inevitable that electricity

¹ The first use of electricity in New Zealand is attributed to a telegraph line between Dunedin and Port Chalmers in 1861, by Murray and Shepherd (2002), who argue that the history of electricity has consisted of a series of paradigm shifts. David and Bunn (1988) analyse some of the historical technological conflicts in electricity.

² See Associated Group Media (1984) and Martin (1998).

consumers should become apprehensive about any monopoly power in the industry, now that electricity had become as integral as running water to modern living. To an extent, however, the excesses of a state-owned monopoly were regarded as less than those likely with a profit-motivated private operator, and could be traded against quality and security of supply, even if existing arrangements did not in fact deliver these.

THE REFORMING 1980s

Reforming Government

A reform- and liberalisation-minded Labour government came to power in 1984, following which New Zealand embarked on an aggressive programme of economic restructuring and liberalisation aimed at improving the nation's economic efficiency. Financial markets were deregulated, and subsidies and tariffs either abolished or phased out. The state sector was restructured to enhance accountability and performance. Government expenditure was cut, and user-pays policies adopted. State-owned trading enterprises were corporatised and subjected to increased commercial disciplines while being given greater operational autonomy, in many cases leading to privatisations. Industry-specific regulation was replaced by a common competition policy under the 1986 Commerce Act entailing a "light-handed" approach. And most of this occurred in the first five years. For much of the past 20 years the broad thrust of these reforms has been maintained, although less so with time. In part this change in reform direction reflects the shift from a first-past-the-post electoral system to mixed-member proportional representation (MMP) in 1996 following a 1993 referendum, and reinforced by the election of Labour-led coalition governments in 1999 and 2002.³

From Government Department to Corporation

In the current context, the reforms of greatest significance began with the corporatisation of state trading enterprises under the 1986 State-Owned Enterprises (SOE) Act. Motivating this shift towards operationally autonomous, profit-motivated and more transparently operating state trading activities was their sustained poor performance under existing arrangements. One measure of this poor performance – lack of investment returns to taxpayers – is exemplified by the following:⁴

Over the twenty years to 1985/86 the government invested \$5,000 million (in 1986 dollars) of taxpayers' money in the departmental trading activities of the Airways System, the Lands and Survey Department and Forest Service, the Post Office [which then included

³ Buckle and McLellan (2003) point out that following the reforms of the 1980s, New Zealand's economic position relative to other OECD countries has been maintained, halting the steady decline in relative economic position occurring from 1975 to 1993.

⁴ Evans and Boles de Boer (1996) consider evidence of more-broadly defined efficiency gains from deregulation in the case of New Zealand telecommunications.

telecommunications], the State Coal Mines, and the Electricity Division of the Ministry of Energy. In 1985/86 these organisations managed assets valued at over \$20 billion but returned no net after tax returns to taxpayers.⁵

Up until this time the electricity sector in New Zealand was dominated by the Electricity Division of the Ministry of Energy, which was responsible for the operation, maintenance and development of all generation and transmission in New Zealand to ensure the reliability and quality of supply and to meet growth in electricity demand. Distribution and retailing services were local-government owned and operated by 61 electricity supply authorities (ESAs), including electric power boards and municipal electricity departments. Each had monopoly-service rights and obligations in licensed franchise areas, supplying energy over their lines networks purchased from the Electricity Division at prices (bundling energy and transmission charges) essentially determined by government. To enhance their bargaining/lobbying power, these organisations combined forces via the Electricity Supply Association of New Zealand (ESANZ). This basic set-up had persisted for much of the twentieth century.

Early Policy and Reform Objectives

The first major expression of reform was the creation of the Electricity Corporation of New Zealand (ECNZ) under the SOE Act 1986 on 1 April 1987 to take over the ownership and operation of the Electricity Division's generation and transmission assets. At the same time electricity generation was deregulated, allowing any party to engage in the business of generation. With ECNZ a stand-alone tax-paying commercial enterprise enjoying greater operational autonomy than its predecessor (including over the all-important questions of electricity pricing and investment), it was intended that the New Zealand electricity sector would enjoy considerable efficiency gains producing significant payoffs to the taxpayer (in the form of ECNZ tax and dividend payments) and to consumers (through reduced electricity prices). Despite the corporation's unpopularity from the outset – made worse with the 1992 winter power crisis (see Chapter 6) – its early performance was encouraging. Reflecting an attempt to stave off impending competition from new third-party generation and the then existence of excess generating capacity, ECNZ adopted early policies of reducing electricity prices in real terms, with a fall of 12% enjoyed by 1991. By that time ECNZ had also paid more than \$500 million in tax and almost \$1 billion in dividends to government.

While efficiency was the early driver of reform, it was not long before the buffer created between government and ECNZ under the SOE Act 1986 faced and glaringly failed its first test. As excess generation capacity began to fall and ECNZ's dominant position appeared secure, the corporation attempted a change in pricing policy to better prepare for the need for new generation investment. In 1991 it announced a planned increase in the wholesale electricity price (as it was still able to do, given its monopoly position)

⁵ Jennings and Cameron, "State-Owned Enterprise Reform in New Zealand", in Bollard and Buckle (1987).

and found itself met with ESA revolt and direct government opposition to the move.⁶ Eventually electing to back down rather than have its independence pointedly removed, ECNZ's board adopted an eventual price rise of 1.5% and recognised that centrally determined pricing by the corporation would be subject to political involvement. At the same time an ongoing debate about the future ownership of ECNZ came to a conclusion, with the recently elected National government backing away from privatisation in favour of the status quo. Equity and other political constraints such as public opposition to privatisation – also including environmental concerns which had found greater expression with the passage of revised resource-management law (the Resource Management Act) in 1990 – were now being given prominence.

OWNERSHIP, STRUCTURE & REGULATION – THE 1989 ELECTRICITY TASK FORCE

In terms of electricity industry policy more specifically, various initiatives were instigated in these first five years of ECNZ. In 1988 the government established an Electricity Task Force comprising various ministries and ECNZ (later also including the ESAs) to review the structure and regulatory environment of the bulk electricity supply industry (later expanded to encompass the whole electricity sector). Building on earlier work and decisions regarding distribution sector reform, and subject to the government's overriding objective of economic efficiency, the Task Force's main recommendations are summarised in Box 5.1.

RESPONSES TO THE TASK FORCE REPORT

ECNZ Break-up Examined

Following the Task Force's recommendations, the government sought ECNZ's views on potential break-up arrangements. The aim of such break-up would be to induce sufficient competition to encourage decentralised decision-making and market-based pricing, reduce barriers to entry and ECNZ's dominance of generation, and facilitate privatisation without regulation. At the same time the costs and risks of any break-up were to be minimised, to assure supply reliability, minimise coordination costs, and to avoid financial failure, erosion of privatisation proceeds and unnecessary investment. ECNZ responded in 1990, concluding there was no substantial case for break-up – that vertical integration was relatively efficient and led to better coordination than would decentralised decision-making, and that the break-up benefits would likely be insufficient to outweigh the risks and costs – but that the England and Wales experience demonstrated its feasibility. The corporation identified up to

⁶ ECNZ (1991) argued that the planned increase was required in order to approach the long-run marginal cost of additional generation (although the evidence in Chapter 3 might be interpreted to suggest otherwise).

BOX 5.1

Summary of 1989 Electricity Task Force Recommendations

Transmission:

- 1) Ownership separation of ECNZ's generation and transmission assets.
- 2) Corporatisation of transmission, with resulting company Transpower to be owned by a "club" of generators and distributors.
- 3) Light-handed regulation under the Commerce Act 1986 to continue, with specific regulation imposed only if shown to be necessary.

Generation:

- 1) No large-scale break-up of generation (due to costs and risks).
- 2) Further study of minimising entry barriers by light-handed regulation, or by limited break-up and accelerated development of a wholesale electricity market.
- 3) Privatisation of ECNZ subject to the successful minimisation of entry barriers (although ESAs opposed privatisation and sought price control while ECNZ dominant).

Distribution/Retailing:

- 1) Confirmed earlier recommendation that ESAs be corporatised and their franchise areas and supply obligations be removed.
- 2) Privatisation by share listing.
- 3) Regulation as for transmission – but energy charges to be unbundled from transmission and distribution charges, and performance measures to be developed.
- 4) Vertical integration between generation and distribution to be subject to normal provisions of the Commerce Act 1986 (although the Ministry of Energy opposed any such integration and the ESAs opposed integration into retailing while ECNZ was dominant in generation).

Source: Electricity Task Force (1989).

four viable sub-groupings of its generation assets, along with a number of non-core hydro generators that could also be spun off. It added that the necessary conditions for a successful break-up included the formation of a centralised wholesale market such as the England and Wales pool (which would maintain the benefits of coordinated generator dispatch), the successful operation of which would require open access to energy retail customers. This in turn would need the separation of distribution and retailing operations, and non-discriminatory access by competing energy retailers to each distributor's local network.

Separation of Generation and Transmission – Trans Power Establishment Board

As a parallel work-stream, the Trans Power Establishment Board (TPEB) was created to oversee the separation of the national grid from ECNZ. In fact ECNZ had taken steps towards this end with the creation of a separate subsidiary to ring-fence transmission from its generation activities, although transmission charges were not unbundled from bulk electricity prices until 1993. The TPEB noted the natural monopoly nature of transmission, at least for the then foreseeable future. The government's desire to see transmission separated from ECNZ was motivated by a desire to develop competition in generation which necessitated open, transparent and non-discriminatory access by any competing generators and others to the grid. Favouring light-handed regulation backed with the threat of heavy-handed regulation, it advocated the introduction of a user-pays element to transmission pricing, and "club" ownership of a profit-motivated Transpower.

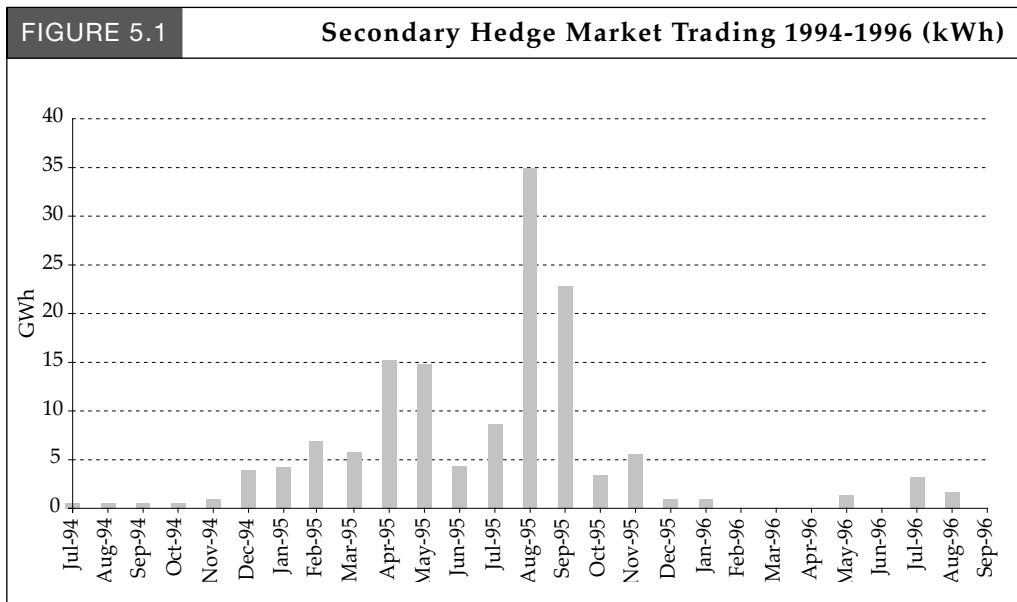
The Board of ECNZ argued that by generation (i.e. then ECNZ) owning 50% of Transpower and distributors/retailers the balance, the company would face the strongest disciplines to minimise costs while maintaining reliability. A company on these lines would be better able to optimise investment decisions in transmission and generation, while operational coordination across the industry would be facilitated. It regarded ongoing state-ownership as providing scope for political interference in what it argued should be commercial decisions (a matter taken up further in Chapter 8). While Transpower was indeed separated from ECNZ in 1994, it has remained in state-ownership (not least because the ESAs opposed any generator stake in the "club" and they themselves did not wish to pay for their stake). It has subsequently faced amendments to its SOE Act objectives, placing greater emphasis on economic efficiency over and above its previous profitability objective (see Chapter 8).

Transpower's initial pricing methodology became regarded as lacking efficiency, being based on allocating its costs and allowed profit (on a rate-of-return basis) across grid-users according to long-term historical usage. To provide better pricing signals regarding grid usage and investment requirements, the company moved to implement pricing components involving more refined usage-based charges, but met considerable resistance from distributors. Since it was obliged to supply such organisations this resulted in years of protracted litigation, only recently resolved. Work remains outstanding on creating instruments to provide better market-based signals as to the costs of grid congestion and constraints, with a long-standing proposal to implement financial transmission rights still extant.⁷ Other points of contention included Transpower's desire to recover sunk grid costs from grid users, an initiative from which it resiled and which later was put beyond debate with a major optimisation and downward revaluation of its asset base in the company's 1997/98 financial year.

⁷ For an assessment of these proposals see Evans and Meade (2001).

Wholesale Market Development

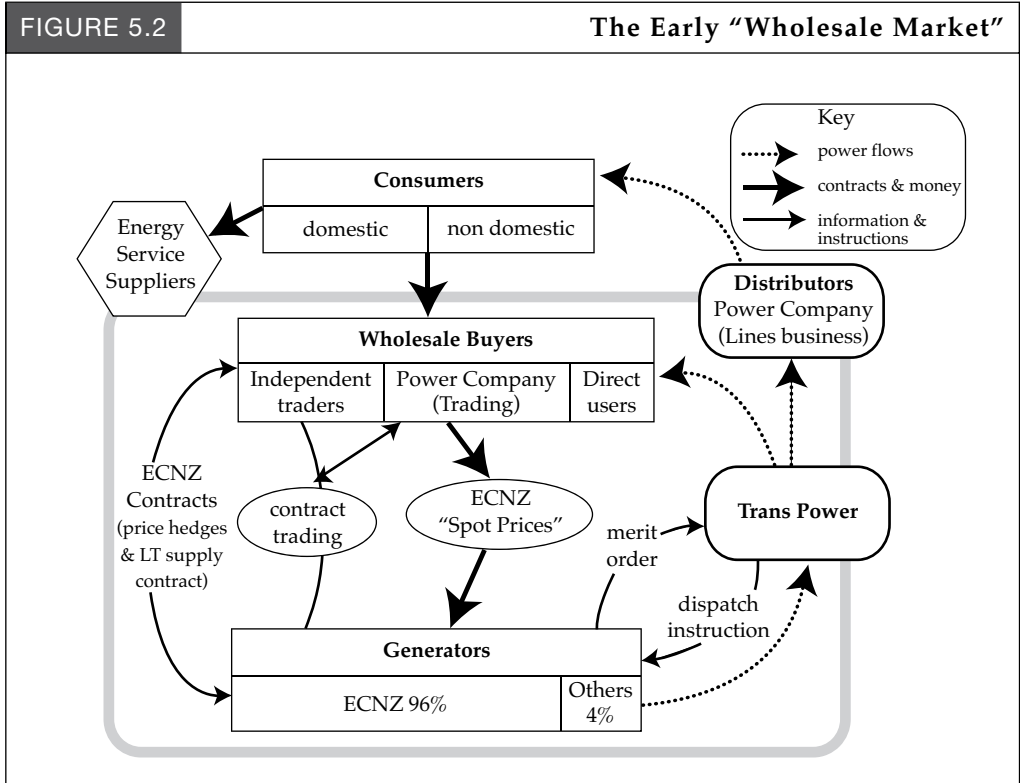
Key to the development of a competitive generation sector was the development of a wholesale electricity market through which independent generators could vie to meet electricity demand and thereby set a competitively determined market price. With the corporatisation of ECNZ in April 1987, but before a wholesale market was fully operational from 1 October 1996, various proxy arrangements were instituted to mimic such a market.



Source: Boshier and Gordon (1996).

Note: Figures for July to October 1994 are averages for the period.

Initially these comprised a combination of year-ahead hedge contracts with seasonal or monthly fixed-prices offered by ECNZ to distributors/retailers (around 90% of which would hedge between 85% and 100% of their expected load, with a bias towards winter months) and a top-up market. The latter included week-ahead half-hourly “spot” prices posted by ECNZ based on the expected short-run marginal cost of supplying electricity to meet projected demand, and capped at the cost of ECNZ’s most expensive generation (\$150/MWh). Indeed, ECNZ also created a proxy internal wholesale market of sorts in these early days by separating its generation assets into four “competing” groupings. However, the greatest degree of wholesale electricity trading in this era occurred with the commencement of secondary trading in hedge contracts from July 1994. The extent of secondary hedge trading is illustrated in Figure 5.1, with the corresponding “wholesale market” depicted in Figure 5.2. It should be noted that the single greatest trade in this early wholesale market, of 35 GWh in August 1995, amounts to one thousandth of one percent of annual energy consumption that year.



Source: Wholesale Electricity Market Development Group (1994).

Interestingly the development of a wholesale market became as much an industry initiative (if arms length SOEs can be regarded as industry and not government) as much as government policy. This was not least because the 1991 pricing showdown between ECNZ and the government, and the preclusion of ECNZ's privatisation for political reasons, fuelled a desire by the corporation to see increased competition as a means of avoiding a reversion to the government-department-like role of its predecessor.

WHOLESALE ELECTRICITY MARKET STUDY (WEMS)

To this end, in late 1991 the Wholesale Electricity Market Study (WEMS) was established to consider the need for a wholesale market and how such a market might be structured. Supported by government, the study comprised ECNZ, Transpower, the ESAs, and four major industrial electricity users. Its recommendations are summarised in Box 5.2. The Study warned against government interventions to assist the wholesale market's development, on the basis that this would create counter-productive uncertainty regarding future interventions.

WHOLESALE ELECTRICITY MARKET DEVELOPMENT GROUP (WEMDG)

Apparently regarded as both a little ponderous and ECNZ-centric, WEMS was followed by a government-sponsored project designed to produce more concrete proposals supported by industry, consumers, and environmental and conservation groups. Formed in 1993, the Wholesale Electricity Market Development Group (WEMDG) was to provide government with proposals, following wide consultation, for developing a wholesale market that, consistent with a new additional policy objective of “sustainable development”, ensured that electricity was delivered at the lowest cost to the economy as a whole (a rehash of “economic efficiency” which by then was becoming as politically unpopular as “privatisation”). Echoing features of WEMS, including the role of a wholesale market in encouraging demand-side responses and energy efficiency as well as investment signals and economic efficiency, the Group’s key recommendations are summarised in Box 5.3.

EIC, M-CO, NZEM, MARIA, AND THE JUNE 1995 REFORMS

In parallel with these initiatives, an Electricity Industry Committee (EIC) was formed in 1993 comprising ECNZ and ESA representatives, and later consumers and Transpower. An outcome of its formation was the establishment of the Electricity Market Company (now M-Co) as a joint venture through which to design and implement a wholesale electricity market⁸ (NZEM). In March of the following year industry participants agreed arrangements for metering and reconciliation of bilateral energy trading⁹ (MARIA), enabling large users to bypass their local distributor/retailer and purchase energy from competing retailers. This was followed by secondary trading in ECNZ hedge contracts in July. With a major reform package announced by government in June 1995 – among other things announcing the spin-out of 28% of ECNZ’s generation capacity into a new SOE to be called Contact Energy – an interim wholesale market was put in place in February 1996 allowing the two generators to compete to meet demand, followed by the fully-fledged market beginning trading on 1 October that year. The establishment of the NZEM as a voluntary, self-regulated multilateral contract and industry-led initiative represented a world-first among countries engaged in electricity-sector reform.

The June 1995 reform package endorsed the development of the wholesale electricity market, stating that government would closely monitor the effectiveness of pool rules and reserved its ability to impose price controls under latent provisions in the Commerce Act 1986 and also the Electricity Act 1992 if it was not satisfied with the market’s operation. It also went on to set out overall and specific objectives for the market’s development and governance. The government’s overall energy policy

⁸ New Zealand Electricity Market.

⁹ Metering and Reconciliation Information Agreement.

BOX 5.2

Summary of 1992 WEMS Conclusions

Facilitated wholesale electricity market is required with aims of (e.g.):

- 1) Encouraging appropriately timed investment in new capacity as well as market-based signals for energy efficiency and conservation.
- 2) Reducing ECNZ dominance and fostering greater competition while retaining a level of system reliability commensurate with consumers' willingness to pay.
- 3) Cementing and improving post-corporatisation gains.
- 4) Giving equal emphasis to demand-side management and response.

Aims proposed to be achieved by (e.g.):

- 1) Separating management and control of grid from generation to allow non-discriminatory network access by any party meeting technical standards and prudential requirements.
- 2) Creating a contracts trading market with standardised contracts as a prelude to a fully operational wholesale market, aided by ECNZ posting half-hourly "spot" prices on a week-ahead basis.
- 3) Providing information services to alleviate the informational asymmetry created by ECNZ possessing and controlling critical operating data.
- 4) Appointing an Electricity Market Commissioner to "manage" the market to ensure target supply reliability and capacity was achieved, or to meet other policy objectives.

Source: Wholesale Electricity Market Study (5, 1992).

objective was to "ensure the continuing availability of energy services, at the lowest cost to the economy as a whole, consistent with sustainable development". Specific objectives regarding the wholesale market included promoting cost minimisation and competitive pricing, including a neutral and flexible process for changing market rules without unduly favouring any party or creating uncertainty as to future arrangements, having a robust, enforceable and neutral supervisory mechanism, deterring anti-competitive behaviour, and enabling the entry of new players (particularly those involved with new technologies or demand-side management) on unbiased terms. The ongoing independence of the market was being put on notice.

BOX 5.3

Key WEMDG Recommendations

A new competitive wholesale electricity market should be established incrementally and without delay:

- 1) Most electricity to be sold under tradable long-term contracts.
- 2) Pool/spot market to be voluntary and operated by neutral market entity (working with Transpower).
- 3) Transpower to provide neutral access to grid.
- 4) Industry-funded market coordination group with broad representation to coordinate market implementation.

ECNZ dominance of generation to be constrained by:

- 1) Progressively leasing 40% of ECNZ's plant to other operators.
- 2) Information on prices and quantities of all spot market offers and bids at each grid connection point (node) being made available.
- 3) 95% of ECNZ's capacity being sold under long-term contracts, falling to 80% as plant leasing progresses.
- 4) ECNZ being prohibited from owning or building (except under contract) the next generator setting the long-run marginal price for electricity, and to this end the then proposed Taranaki combined-cycle gas-generation project consents and gas supply contracts to be sold to a third party.
- 5) ECNZ being restricted to building no more than 50% of any new capacity over the following ten years and any new such investments by ECNZ being ring-fenced from existing generation to ensure new plant output prices are not influenced by other ECNZ plant.

Source: Wholesale Electricity Market Development Group (1994).

The NZEM commenced trading in earnest on 1 October 1996. Contact Energy was now competing with a diminished and restrained ECNZ (see below), which had finally been relieved of its formal obligation to supply. To ensure supply security with competing generators, ECNZ and Contact were to contract with energy purchasers for the desired level of "dry year" risk protection (see Chapter 6). Wholesale prices were not to be capped and were to respond freely to matters such as hydro reserves, thereby signalling the value of electricity if shortages should be expected or arise. Government explicitly ruled out intervening to ensure supply security for purchasers who failed to contract with generators for their desired security level. It did so on the ground that such intervention would exacerbate the risk of shortage by undermining the incentives

for market participants to take the steps necessary to ensure their desired level of security. While the market was on notice, government wished participants to find their own solutions and saw its involvement as potentially hindering such moves.

BREAK-UP OF GENERATION

Tying ECNZ's Hands

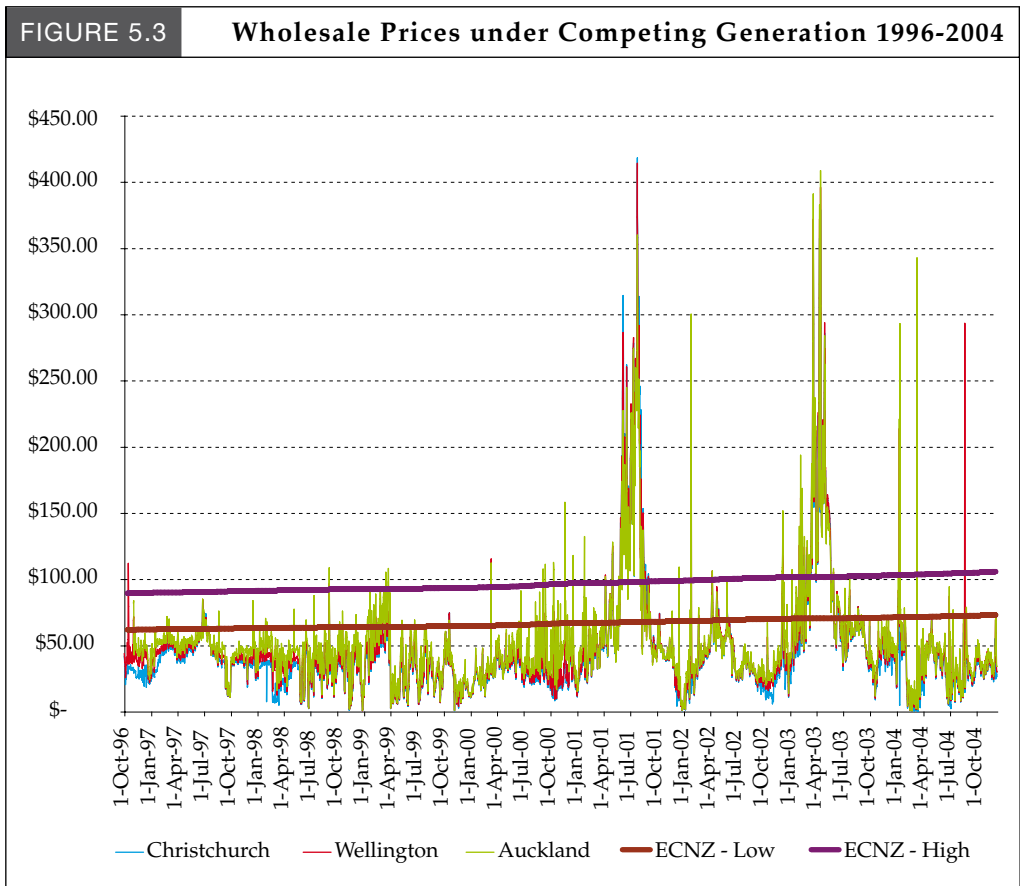
While the WEMDG proposals were not wholly accepted by government, its reform announcements of June 1995 set about implementing much of what had been recommended. A number of small, non-core hydro generators were to be sold by ECNZ to regional power companies or Maori interests, ultimately being acquired by the hitherto distributor/retailer and ascendant generator, TrustPower. More fundamentally, however, Contact Energy was to be created by spinning out generation from ECNZ – and it would have both a mixture of fuel types and geothermal and hydro development sites. As such, Contact was anticipated to provide keen competition to the diminished ECNZ and to further reduce its market share with time, and to provide further impetus for the development of the wholesale market.

This aim was assisted by restraining ECNZ from investing in more than 50% of new generation (excluding co-generation and renewable generation). ECNZ was further required to ring-fence any new generation investments to avoid their cross-subsidisation by existing capacity, which, combined with the investment cap, was intended to ensure the output prices of new capacity reflected its true costs. This was intended to provide appropriate pricing signals for other investors in generation. ECNZ was also required to sell a greater proportion of its output under longer-term hedge contracts (declining from 87% one year ahead through to 30% five years out) as a means of diminishing its incentive and ability to affect wholesale electricity market prices, and also to ease the transition to the wholesale market (by reducing customers' exposure to spot price movements). All of these constraints were to persist unless and until ECNZ's market share fell to 45% or below.

June 1995 Memorandum of Understanding

The details of these reforms were set out in a Memorandum of Understanding (MOU), between ECNZ and government, of 8 June 1995. That agreement also set out that ECNZ was to continue with its sale process of the land, consents and gas contracts required for a new gas-fired combined-cycle generation project planned for Taranaki. This sale occurred in 1996 to a consortium comprising Fletcher Challenge, Mercury Energy and Canadian TransAlta. The MOU went on to note that ECNZ was at that stage prohibited under its contract with government under the SOE Act 1986 (its Statement of Corporate Intent) from acquiring a significant share in any ESA (by then called an energy company). Importantly, it provided that this prohibition would also be lifted once ECNZ's market share fell below 45%.

As it happens, the 1995 reforms were a political compromise conditioned by ongoing ECNZ opposition to break-up on cost and risk grounds. More aggressive break-up options had been considered, but their time had not yet come. It was not until the then National government was returned to power with a coalition partner following the country’s first MMP elections in 1996 that further break-up was considered. Reflecting a combination of ongoing preference among officials for break-up, persisting tension between government and ECNZ, and reduced electricity prices following the creation of Contact, a review of break-up options was announced in June 1997. The result of that review was the announced separation of ECNZ into three separate and competing SOEs in a further reform package in April 1998, with effect from 1 April 1999.



Source: M-Co data (unpublished), ECNZ (1991), and CPI calculator at www.rbzn.govt.nz.

ECNZ’s Final Separation, and the Birth of Vertically Integrated “Gentailers”

With the creation of Meridian Energy, Genesis and Mighty River Power, as the new SOEs were to be called, all restrictions on generators that prevented them

from owning energy retailing operations were to be lifted. Since the 1998 package included the enforced separation of ownership of distribution businesses from that of competitive activities (such as generation and retailing), this reform resulted in a fundamental and unpredicted realignment of the industry. As the owners of combined distribution/retailing/generating companies scrambled to divest themselves of generation and retailing in favour of ongoing lines ownership, all generators scrambled to secure a retail customer base as a natural measure to hedge their exposure to wholesale market price volatility. The electricity sector, being comprised of multiple generators from the dismembered ECNZ as well as new entrants, quickly became vertically integrated between generation and retailing. In a move that was quite out of character for post-MMP governments, Contact was privatised in 1996, with a controlling stake being sold to US-based Mission Energy, but current policy is for the remaining state-owned generators to continue under government ownership.

As shown in Figure 5.3, the final separation of ECNZ in April 1999 resulted in an overnight and sizeable reduction in wholesale electricity prices, followed by a period of slightly increased price volatility. Given the subsequent upward trend in prices it might be surmised that this represented a transitional decline as the new generators became used to the dynamics of competition (and possibly learned how best to increase combined generator welfare by easing up on competition). However, it could also be attributed to ongoing demand growth and the resulting increase in the amount of time more expensive plant is required to meet that demand, or simply to hydrology and other fuel limitations.

Table 5.1 provides summary statistics for the average main-centre prices both before and immediately after the final separation of ECNZ. A fall in prices, but slight rise in price volatility, are clearly evident.

Measure	Christchurch		Wellington		Auckland	
	Pre 4/99	4/99 – 12/00	Pre 4/99	4/99 – 12/00	Pre 4/99	4/99 – 12/00
Mean	37	28	41	30	48	37
Median	37	26	41	29	48	35
Std. Deviation	13	13	13	14	15	18

Source: M-Co data (unpublished).

Wholesale Market Prices versus ECNZ Predictions

Figure 5.3 tells yet another interesting story, comparing actual wholesale electricity prices with predictions made in ECNZ (1991) as to prices that would need to prevail

to support future generation developments, based on long-run marginal costs.¹⁰ In 1991 dollars, development based on gas-fired stations was predicted to require prices in the order of \$55-60/MWh, for coal-fired developments \$65-70/MWh, and for hydro development \$70-80/MWh. Median electricity prices even for Auckland have typically tracked well below these predicted levels, as have mean prices – despite being more sensitive to price spikes than median prices. Indeed, these wholesale prices compare with average prices charged by the then monopoly generator ECNZ for 1987 through to 1991 of between \$48 and \$55/MWh (\$61 to \$70/MWh adjusting for CPI movements between June 1991 and June 2004, or \$75 to \$86/MWh adjusting from June 1986 to June 2004).

In this light it can be concluded that NZEM prices have been significantly lower than those experienced under ECNZ, despite the need for new generation over the past decade. Certainly price volatility has increased with the shift from ECNZ's administratively determined prices to those determined under the NZEM, but this is to be expected with the former set under fixed-price contracts (subject to a \$150/MWh cap) and the latter having higher informational content (reflecting the expectations of multiple market players rather than those of ECNZ, and the better assessment of the marginal cost of water under the spot market price-discovery process). In any case average prices under the decentralised wholesale electricity market can be said, on the basis of this comparison, to have bettered those under the centralised pricing model employed in the early stages of New Zealand's electricity reforms.¹¹

DISTRIBUTION REFORM AND RE-REFORM

Anticipatory Reforms

Under 1968 legislation the combined distributors/retailers, comprising locally controlled ESAs, required licenses to supply electricity or operate electric lines within defined geographical franchise areas. While these operators were permitted to supply electricity outside of their franchise areas, they could do so only with the consent of the licensed operator in that other area. In practice this did not result in competitive energy trading. While reform of generation and transmission quickly became part of the government's 1980s reform agenda, it was not until the early 1990s that reform extended to the ESAs.

An early move was to make ESAs subject to income tax with effect from April 1987. As noted above, the 1989 Electricity Industry Task Force endorsed previous government

¹⁰ Such costs were defined to include capital costs amortised over the life of the generation plant, and operating, maintenance and fuel costs.

¹¹ Appendix 5.1 provides estimated wholesale electricity prices for 1978-2003 after attempting to adjust for some of the structural changes occurring over the period. Such changes make it difficult to measure price indexes measuring the same good or service over time.

moves to remove ESA franchise areas and supply obligations, and noted ESA moves in preparation for restructuring including corporatisation, the phasing out of cross-subsidies between residential, commercial and industrial customer classes, and a reduction in the number of ESAs by about 10. The 1990 legislation ended the appointments of elected ESA board members and required the appointment of commercial directors.

Electricity Act 1992 and Energy Companies Act 1992

The most fundamental reform of distribution and retailing came with the passage of the Electricity Act 1992 and Energy Companies Act 1992. Under the latter ESAs were corporatised along SOE-Act lines, and established as profit-motivated electricity companies (having regard to other objectives such as the desirability of encouraging energy efficiency). In forming such companies, decisions were required as to how they should be owned. The majority ended up under customer-trust (or consumer-trust) ownership. Franchise areas and supply obligations were incrementally removed, with small customers (less than 0.5 GWh/year) the first to be given an opportunity to change energy supplier, as they were expected to be most exposed to price increases with the removal of cross-subsidies. Large customers were opened up to competitive suppliers from 1 April 1994, in anticipation of which metering and reconciliation arrangements (MARIA) were agreed by industry. The distribution and retailing activities of the new electricity companies were to be ring-fenced on an accounting basis, and information disclosures used as the means to expose any misconduct by essentially non-competitive distribution (the so-called "light-handed" regulatory approach). Transitional price-control provisions were included but not applied for either distribution or retailing, and levies to fund subsidies for rural electricity users were phased out.

A process of rationalisation ensued, with a number of electricity companies being sold to private interests (such as local or foreign trade buyers, portfolio investors or via share listings) or merged. In order to facilitate competition in energy retailing, buying groups were formed or critical mass in customer numbers sought so that economies in energy purchasing could be translated into lower energy margins. Efficiencies were also sought in areas such as head office and maintenance costs in particular, although for reasons discussed below the incentives for such gains were heavily attenuated by the regulatory arrangements implemented for distribution activities. As shown in Chapter 3, the results of these reforms were not as positive as expected, with the removal of cross-subsidies from commercial customers to residential customers contributing to an overall increase in real residential electricity prices. While industrial and commercial users were enjoying the benefits of real price reductions from competition under the new arrangements, the promised reductions in residential electricity prices evolved, at the political level, into prices being subject to "strong and sustained downward pressure", which did not carry quite the same political appeal. Further reform loomed.

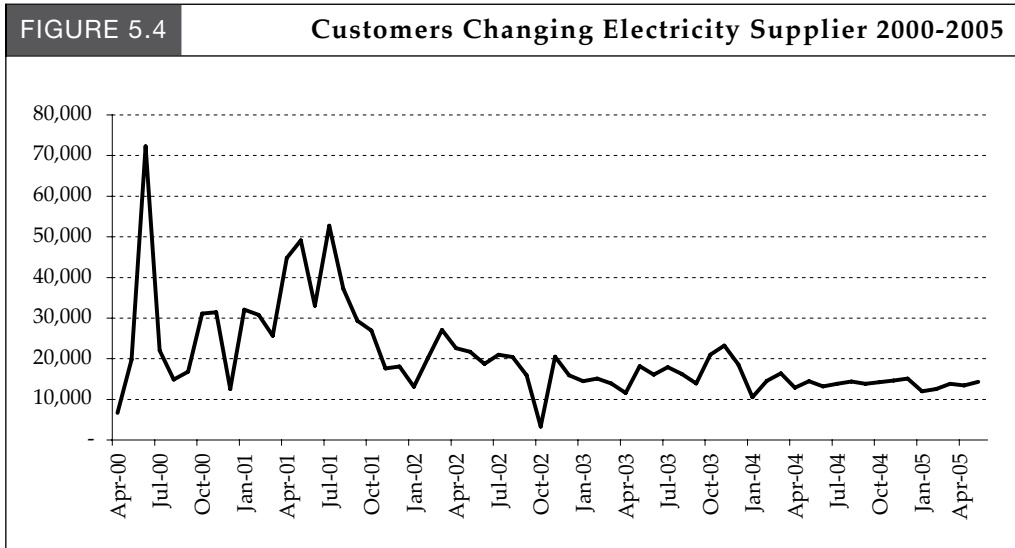
“A Better Deal for Electricity Consumers”

The April 1998 package, “A Better Deal for Electricity Consumers”, was enacted by the Electricity Industry Reform Act 1998 and sought to see reform benefiting residential customers (or that government be seen to be directing industry towards that end). Distribution operators were viewed as lacking incentives to achieve cost efficiencies, and as having incentives to deter competition in retailing (by not facilitating customer changeovers, restricting competitor access through their networks, or using monopoly rents from distribution to cross-subsidise retail customers at risk of switching to competitors) and to invest in uneconomic generation using profits from lines. The solution was to force the separation of ownership of lines activities from competitive activities (which were taken to include metering as well as retailing and generation) with effect from 1 April 1999. This move was backed with stiffened information-disclosure requirements and the threat of price regulation for distributors under then-latent provisions in the Commerce Act 1986. Industry was threatened with imposed measures if it did not rapidly develop effective means for small customers to switch energy suppliers.

Deemed Profiling and Customer Switching

This last measure was taken because of arguments that the industry’s metering and reconciliation agreement (MARIA) imposed costs on new retailers that discouraged their competitive entry (acknowledging that these costs were greater than current retail margins). While falling metering costs were seen to predict ongoing uptake of time-of-use metering by successively smaller customer classes, this uptake was not likely in the near-term for residential customers. In accordance with the government’s requirements, industry instituted a system of “deemed profiling” on 1 April 1999 whereby the electricity-demand profiles of smaller un-metered customer classes were proxied on a statistical basis – not altogether unlike insurance companies allocating risk profiles to various customer classes. The mandated changes of 1999 required substantial investment by companies in new billing and reconciliation systems which, in association with increased “wheeling”, during a lively adjustment period threw up all sorts of anomalies and odd treatments of customers that received much publicity. However, as indicated by Figure 5.4, since April 2000 customer switching has become reasonably common, albeit uneven (including the spike in June 2000 when a registry backlog was cleared, and a surge in winter 2001 when NGC’s electricity customers were acquired by Genesis and Meridian).¹²

¹² For reference purposes note that there are around 1.5 million residential customers, 125,000 commercial customers and 100,000 industrial customers, i.e. 1.725 million in total. Hence a monthly switching of 15,000 customers represents a monthly turnover of almost 1%.



Source: M-Co (2005).

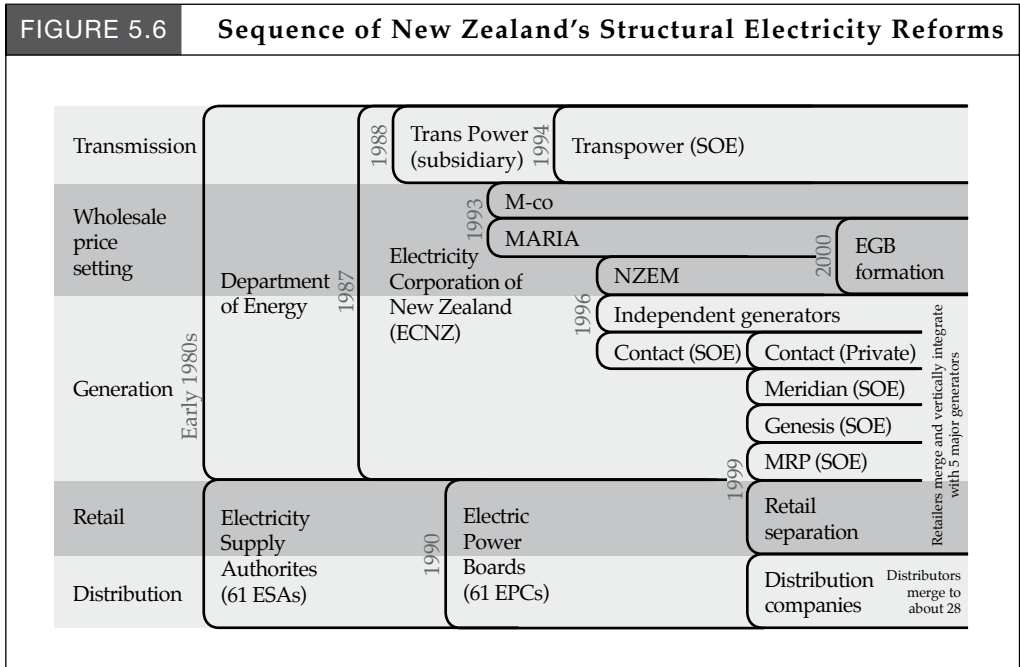
Retail Margins and Competition

Whether or not such switching has been effective in reducing retail energy margins for smaller consumers remains a moot point. An investigation by the Ministry of Economic Development (MED) reported in January 2004; it suggested that the margin between retail and estimated wholesale prices had been climbing, but that the trend was now possibly broken. As shown by Figure 5.5, since deemed profiling was introduced there has been a steady increase in the number of retailers in each distribution area. While 78% of customers were supplied by incumbent retailers as at June 2003, and 55% by volume of electricity is sold by incumbent retailers, these figures are significantly better than in some other countries.¹³ The MED concludes that there is evidence that competition is increasing. Certainly the contestability of small retail customers (i.e. the prospect of alternative energy suppliers seeking to offer or offering an alternative should incumbents enjoy excessive margins), if not outright and aggressive competition, would appear to have developed.

Hutton (2004) finds that though retail margins rose significantly during 1997-2001, they declined rapidly over 2001-2003.¹⁴ In other words, retail margins have varied widely since the introduction of the NZEM, because wholesale prices are much more volatile than retail prices and because retail price adjustments tend to lag behind wholesale price changes. Retailers bear the brunt of wholesale price changes, so rapidly rising retail margins in the short term are not necessarily evidence of any sort of market non-performance as they

¹³ Early evidence from reforms in Germany, for example, was that only 2% of customers switched energy supplier. See Glachant and Finon (2003).

¹⁴ Like the MED, Hutton notes the difficulties in estimating retail margins due to the complexity in reliably estimating wholesale prices, particularly with changing market arrangements over time.



Source: Robertson *et al.* (2003).

These provisions took shape with information disclosure regulations being promulgated in 1994, administered by the Ministry of Commerce, mandating the disclosure of various efficiency and financial performance measures. Following the model developed for Transpower in 1992, the financial performance indicators included the so-called Accounting Rate of Profit (ARP)¹⁵, being the financial rate of return earned by lines operators on their lines, and the Optimised Deprival Value (ODV). The latter measured the current replacement value of lines assets based only on an assumed necessary configuration of system assets and given existing asset ages and lives (the optimised depreciated replacement cost, or ODRC), or the present value of the income expected to be earned on those assets (the economic value, or EV) if lower.¹⁶ Thus ODV was the lesser of ODRC or EV. The ARP was a measure of the rate of return on ODV from lines operation which could be directly compared to a “fair” rate of return given expected returns on investments of comparable risk, typically taken to mean an appropriate Weighted Average Cost of Capital (WACC) as commonly used by financial practitioners. Thus changes in ODV would influence the value of ARP, and hence of any assessment of whether excess returns were being earned from lines operations when compared with WACC.¹⁷

¹⁵ Later refined and renamed the Return on Investment (ROI).

¹⁶ Stranded assets were treated separately, being valued at net realisable value and excluded from ODV.

¹⁷ Which itself affects the economic value (EV).

ODV Rules

A number of practical difficulties arose with the implementation of the disclosure rules, including inconsistencies and unintended applications of the ODV rules. For example, different lines operators applied differing optimisation rules, certain costs only indirectly associated with lines operations were treated as being so associated by some operators but not others, and significant variations arose in asset lives and other assumptions used in calculating ODVs. The June 1998 reform package discussed above included measures designed to increase the consistency and transparency of disclosed performance measures, and required additional disclosures such as lines operators' asset management plans (highly topical in the light of the 1998 Auckland CBD power crisis discussed in Chapter 6) so that more comprehensive assessments could be made of whether operators were trading off operating standards and system longevity against profitability.

More fundamentally, however, the ODV-based disclosure regime, like rate-of-return regulation, created only weak incentives for lines operators to make efficiency gains, perhaps as the cost of avoiding the distortions possible under more heavy-handed approaches.¹⁸ The difficulty for a lines operator under the scheme was that it would face opprobrium or other sanctions (if at all) only if its ARP rose significantly above its estimated WACC. A simple way to avoid breaching such a threshold was to be inefficient, which would then permit high lines charges without excess returns being revealed. Another way would be to load as many indirect costs into ARP calculations as could be tolerated, or maximise the use of ODV-inflating assumptions.

Alternatively, a lines operator committed to securing efficiencies would enjoy the benefits of doing so only if their initial ARP was less than WACC, and then only until their ARP rose to WACC. Once that threshold was reached, any further efficiency gains would be to the benefit of consumers in the form of lower prices (or suppliers in the form of inflating costs) but not to the lines operator and its owners. Similarly, an efficient lines operator might aggressively value its system assets on the lean side, thereby minimising its ODV, but this might then land it in a situation of having to reduce perhaps already lean lines charges to avoid their ARP exceeding WACC. In short, the focus was less on disparities in lines charges – which disparities could be expected to be quite large given widely differing network characteristics resulting from widely differing geology, topography, and nature and density of customers – than on the net returns earned by lines operators, which net returns could be derived by either desirable or undesirable means.

¹⁸ Arguably stronger incentives for efficiency gains were achieved where lines companies were owned by customer trusts – since those bearing the costs of inefficiencies had incentives to see them removed – although governance issues with such trusts served to diminish this advantage (see Chapter 9).

June 2000 Electricity Industry Inquiry

A distinctive shift in approach to distribution-business regulation arose following an inquiry into the electricity industry commissioned by the Labour/Alliance coalition government formed after the 1999 general election. Announced in February 2000, the inquiry was to evaluate – without indicating why an evaluation was necessary – whether current regulatory arrangements met government's objective of ensuring that "electricity is delivered in an efficient, reliable and environmentally sustainable manner". Where arrangements were found to be deficient, it was to recommend changes. Reporting in June 2000, the inquiry concluded that the threat of price regulation was not considered credible by lines operators, so, in addition to refinements to the disclosure regime, it recommended that the Commerce Commission take over the administration of the regime and set about defining thresholds beyond which lines operators would face direct price controls.

Shift to Heavy Regulation

Certain of the Electricity Industry Inquiry's recommendations were implemented via the Commerce Amendment Act 2001 and Commerce Amendment (No. 2) Act 2001. Under these amendments, the latent price controls in Part IV of the Commerce Act 1986 were replaced by specific powers for the Minister of Commerce to impose controls (on prices, revenues or quality standards) for controlled goods, for the Commerce Commission to develop thresholds for the application of controls, and for controls to be targeted at specific operators (rather than entire industries as previously) for periods of up to five years. The latter (No.2) Act went on to require all lines operators to submit revised ODV valuations subject to the Commission's approval; it also required the Commission to review the ODV methodology. After lengthy consultation the Commission promulgated its thresholds in December 2003, with the result that lines operators (including Transpower) are now subject to CPI-X price regulation of varying degrees depending on operator classes defined by reference to efficiency and other measures, and thresholds for review. Given expected inflation, these controls are unlikely to result in significant changes in lines charges – certainly not anywhere as large as those imposed in England and Wales – even for operators deemed to be in the least-efficient category, and some more-efficient operators will even be permitted to increase lines charges (since both their charges and rates of return are low). The controls carry no distinction on grounds of lines-company ownership, thus ignoring the beneficial effects of customer ownership in mitigating overcharging by monopoly lines companies (see Meade (2005)).

"A FAIR DEAL FOR ELECTRICITY CONSUMERS"

More generally the June 2000 Inquiry heralded a significant expansion of the scope of government's direct involvement in the operation of the electricity sector. The new government expressed its approach as being to use "industry solutions where

possible and regulatory solutions where necessary". While this of itself did not signal a material departure from the approach taken previously, the scope (and in some cases the nature) of the changes required of industry was such that industry-level solutions were unlikely to be feasible in the timeframes allowed (if at all). Accordingly, a package of reforms was announced by government in response to the 2000 Inquiry, released in October that year and described as "A Fair Deal for Electricity Consumers". This package amounted to an effective shift towards more widespread and direct government control of the industry, not confined to policy-setting or to areas facing competition issues or concerns about market power, and increasingly directed towards environmental and equity goals. A critical element of the package was an industry-wide, centralised planning and administration governance structure that government would impose by legislation if the industry could or would not deliver it. In large part because of the breadth of the governance structure and unresolved issues about the treatment of long-term contracts, industry did not agree on a governance structure and so government legislated for it.¹⁹

CURRENT AGENDAS

Rapid Industry Centralisation – The Electricity Commission

Following the October 2000 reform package, relevant legislation passed by government includes the Electricity Amendment Act 2000, Electricity Amendment Act 2001, Electricity Industry Reform Amendment Act 2001, Commerce Amendment Act 2001, Commerce Amendment (No. 2) Act 2001, and Commerce Amendment Act 2003. Industry governance was from 1 March 2004 consolidated under, and industry authority transferred from industry to, a new Electricity Commission (see Chapter 8). To address occasional winter power crises the Commission has contracted for reserve generation capacity and interruptible load (see Chapter 6), although this capacity is already being used as peaking plant. Among many other things (see Chapter 8 for a summary of the Electricity Amendment Act 2001), regulations are now in train to require distribution companies to offer low fixed tariff options to small customers, and consumer or customer trusts owning lines operations are to provide greater financial transparency to their beneficiaries. General consumer-law protections have now been

¹⁹ One significant roadblock to the proposed arrangements was a requirement for compulsory membership of the NZEM which would then be a gross pool. Another was the preclusion of bilateral trading (which would then be allowed by means of CFDs only) and the subjecting of all trades to market rules to which bilateral trades hitherto had not been subjected (which some market participants clearly preferred, given 20% of energy was traded outside of the NZEM). Yet another was the treatment of long-term supply contracts with aluminium smelter operator NZAS which had been entered into long before the electricity reforms and which were inconsistent with proposed arrangements. This presented an issue that market participants would naturally struggle to resolve under compulsory arrangements that applied across the industry. The Electricity Industry Inquiry seemed to reflect an agenda of increasing centralisation of industry control under government, irrespective of the merits of the case.

extended to cover electricity and lines operation. The Electricity Commission can now prescribe reasonable terms and conditions for grid connection, regulate grid expansions or upgrades and allocate their costs, set grid quality and security standards, and set grid pricing policy.

BOX 5.4**June 2000 Report of the Electricity Industry Inquiry ...****Regulation and Governance:**

- 1) Framework should reflect interconnectedness of industry.
- 2) Focus on principles and process, avoiding prescriptive approach.
- 3) Push decision-making as close as possible to those with knowledge, capacity and accountability.
- 4) Governance of wholesale market should be strengthened and membership compulsory.
- 5) Wholesale market should be overseen by body independent of industry, and take views of all participants into account.

Wholesale:

- 1) Governance bodies (NZEM, MARIA, MACQS²⁰) should be replaced with single structure with compulsory membership and board elected by participants but comprising majority of members independent of industry.
- 2) New market structure should cover existing NZEM activities, but be expanded to include transmission and distribution pricing.
- 3) Government should invite industry to develop the proposed new governance structure within 12 months, and legislate for regulatory powers to achieve its development if industry fails to do so.
- 4) A real-time market should be implemented, and the development of financial transmission rights (FTRs) supported.
- 5) System operator should publish short- and medium-term system adequacy projections, and wholesale market bidding information should be disclosed within one month or sooner of relevant trading periods.

box continues ...

²⁰ Multilateral Agreement on Common Quality Standards – an industry governance structure created in 1999 to shift the determination of quality and supply security matters from Transpower to industry.

Transmission:

- 1) Transpower's principal objective to be achieved "in partnership with the government", striking a "reasonable and transparent balance" between earning a commercial return and achieving government's overall energy policy goals.
- 2) Transmission services to be contestable wherever possible, and to meet minimum standards but also to be agreed between Transpower and users.
- 3) Transpower's services to be priced according to government principles and market-determined methodology, developed under the the new industry governance structure.
- 4) Transpower to seek "optimum trade-off" between minimising maintenance costs and transmission losses.
- 5) New and replacement grid investments to be undertaken by Transpower and priced to encourage users with strong incentives to identify least-cost options (including energy efficiency and demand management), with investment costs to be recovered by market-determined methodology.
- 6) Market to be encouraged to bring forward distributed generation and demand-side solutions to relieve grid constraints, with transmission savings to be passed to distributed generators.

Distribution:

- 1) Commerce Commission should assume responsibility for information disclosure regulation and enforcement, and have distribution and transmission assets valued on a common basis.
- 2) Contracting arrangements between Transpower and government (statements of corporate intent, SCIs) to be replicated between distribution companies and their owners where controlled by trusts or local bodies.
- 3) Commerce Act should be amended to empower Commerce Commission to impose targeted (i.e. company-specific, rather than universal) price controls (including CPI-X) on lines operators, and to set thresholds for their imposition.
- 4) Distribution companies should be allowed to invest in distributed generation (i.e. despite 1998 separation).

BOX 5.4 CONT'D

... June 2000 Report of the Electricity Industry Inquiry

Retail:

- 1) New industry governance body to further develop and enforce customer switching protocols (or government to regulate if body's protocols ineffective).
- 2) Industry should develop ombudsman scheme to apply to distribution and retail within six months, or government will look at other implementation options.
- 3) Amendment to Consumer Guarantees Act 1993 extending its coverage to electricity is supported.
- 4) Where retailers become insolvent, customers should become attached and liable to incumbent retailers (with their electricity cost set at the wholesale price).
- 5) Retail companies should be obliged to offer pre-payment meters at reasonable cost.

Energy Efficiency/Sustainability and the Environment:

- 1) Fixed network charges should account for less than 25% of household electricity bills, with the Energy Efficiency and Conservation Authority (EECA) to monitor and report breaches to the Commerce Commission.
- 2) Transmission charges should be amended to allow co-generation owners to trade off standby reliability and its price.

Source: Inquiry into the Electricity Industry (2000).

Distributed Generation Encouraged

Consistent with its overall objective of ensuring that "electricity is delivered in an efficient, fair, reliable and environmentally sustainable manner to all classes of consumer", the government has also taken steps to encourage greater investment in distributed generation, particularly that based on renewable energy sources. Indeed, under the Electricity Industry Reform Amendment Act 2001 it has relaxed restrictions following the 1998 ownership separation reforms on lines companies also engaging in generation provided they do so with renewables, and the Electricity Amendment Act 2001 provides for regulations to facilitate the interconnection of distributed generation to distribution networks. Investments in distributed generation, locating generation closer to demand and avoiding the transmission grid, are intended to mitigate problems of grid constraints (including line losses and market power) thereby reducing electricity prices, deferring the need for grid expansion, helping to meet environmental objectives, increasing generator competition within regions, making generation investments more affordable (compared with more capital-intensive large-scale generation) and enhancing system security. It is interesting to note that such

moves represent a reversion of sorts to the situation existing in New Zealand prior to construction of the grid and state monopolisation of generation.

Rapidly Expanding Regulatory Powers

The Electricity and Gas Industries Bill 2003, enacted in October 2004, amends features of the 2001 legislation, as well as materially expanding the regulatory scope of the Electricity Commission. Under the legislation, generators can be required to make a minimum level of their capacity available via supply or other hedge contracts, and wholesale electricity buyers can be required to carry a minimum level of hedge cover. The Commission's roles will potentially extend well beyond industry governance to the level of industry micro-management, albeit of companies with significant private or non-government ownership. The operational independence of state-owned generators and Transpower will also now be further eroded in favour of the Commission.

CONCLUSION

Reform of electricity sectors worldwide present us with a possible “chicken and egg” conundrum. While changes in attitude towards state or otherwise centrally controlled electricity systems resulted in a reassessment of those parts of such systems that might be usefully opened up to competition and which must remain tamed monopolies, it is possible that such changes were more a reflection of ideology and fiscal imperative than a moment of inspiration. In countries where such motivations were present, early and radical reform has been possible. In countries where they were not, the experiences of early reformers have possibly been the greater influence, simply by demonstrating what was achievable (and what pitfalls to avoid) and begging the question, why not? The issue then became the pace and extent of reforms, rather than their fact or nature. The question New Zealand now faces is whether to proceed along lines consistent with its earlier reforms and the reforms elsewhere, or to adopt a course that involves reversionary and more idiosyncratic elements.

New Zealand was among the first states to reform their electricity systems along more market-oriented lines. In the mid 1980s, it could have been said to be rapidly pursuing elements of reforms adopted elsewhere, such as the unbundling of transmission and generation, but in fact it has remained decidedly behind the pack in terms of both privatisation and decentralisation. Despite common misperceptions, most of the New Zealand electricity sector remains in government ownership, and increasingly is reverting to centralised government control – despite the intent of corporatisation under the SOE Act. New Zealand persists with a centralised wholesale electricity market (in fact more so with the move to a gross pool in 2004), despite the growing preference internationally for decentralised bilateral trading and the use of power exchanges for contract trading. As discussed in Chapter 7, this is also likely to forestall

improvements in demand-side participation, for smaller customers at least, which would help to mitigate any concerns about persistent market power in generation (see Chapter 9).

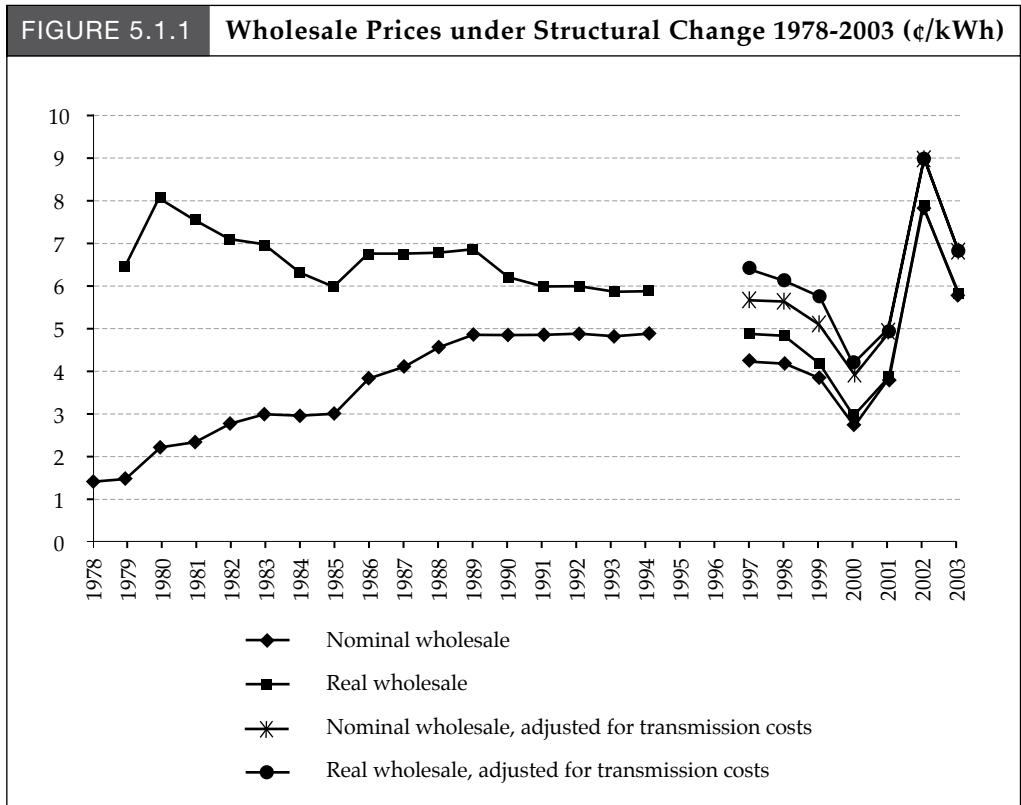
Transmission reform has remained stalled and, as discussed in Chapters 8 and 10, represents a telling weak point in the overall reform process. The assumption of transmission pricing and investment responsibilities by the new Electricity Commission shifts these critical problems sideways, and it remains to be seen whether this shift produces sufficient benefits to overcome the additional problems it generates. The contemporary reversion towards centralised industry control under government ownership is supposedly intended to overcome the real or perceived problems that confronted the industry under its semi-liberalised arrangements. Yet it represents a course at odds with trends elsewhere, and threatens the viability of private participation in the sector. This has the potential to crowd out private solutions to issues confronting the sector and to thereby hasten a full reversion to the pre-reform arrangements.

That New Zealand has now opted for heavy-handed regulation as well as predominantly central government (or local/community) ownership suggests that we have ended up with an overly restrictive framework, since other countries have achieved the pricing gains and anti-monopoly protections that New Zealand now seeks while at the same time securing very significant proceeds and decentralisation benefits from asset sales. Indeed, New Zealand taxpayers, as owners of state-owned generators and transmission, continue to underwrite the significant risks of future industry investments.

Of greater import is New Zealand's move towards greater re-centralisation of governance and operational control of both state- and privately-owned operations in the reformed sector. Representing a reversion towards the model existing prior to the reforms in New Zealand and elsewhere, this trend is counter to that continuing elsewhere – including the late-starting and sometimes reluctant European Union – except in the failed reforming state of California (whose misfortunes New Zealand has not shared). It remains to be seen whether this will encourage or discourage ongoing private-sector participation in the sector and contribution to its ongoing development, or whether New Zealand will revert to a pattern observed in the sector's earliest years where local and regional development is substituted for larger-scale national solutions, or national solutions are implemented but only with a reversion to a centralised and administrative approach, with the cost and risk of industry development being borne by taxpayers and consumers but the control of such development likely to reside elsewhere.

APPENDIX 5.1 – WHOLESALE PRICES UNDER STRUCTURAL CHANGE

Prior to 1993, all costs of transmission were borne by ECNZ (and its government-run predecessors) and so were factored into the wholesale price, along with generation costs. Electricity supply authorities would then purchase electricity from wholesalers at this price and add a margin to reflect distribution and retailing costs, which would be reflected in the final retail cost.



Source: NZED, ECNZ, Ministry of Commerce, and NZEM for wholesale prices; Transpower for transmission cost adjustment.

Notes: Prior to 1995 average prices are calculated by total revenue/units sold. Post 1997 the prices are from the Haywards reference node price, as total revenue is not available. Distribution transmission cost data are unavailable prior to 1997.

After 1993, transmission costs were split between generators and distributors – distributors and major energy users were required to pay a connection fee for grid access. This means that the wholesale cost would represent the cost of generation, but only part of the cost of transmission rather than the entire cost of transmission. Thus,

all else being equal, we would expect the wholesale price to fall, because it no longer includes most transmission costs. The retailers would then add a margin to cover retailing and distribution costs, including those transmission costs borne by distributors.

In other words, a naïve time series of wholesale prices would not be measuring the same thing over time, and so might falsely suggest that wholesale prices had fallen when in fact there had been no change of economic significance.

A better method is to adjust for the transmission cost adjustment by adding back the cost of transmission borne by distributors, and so to generate a consistent time series. Doing this yields the price series in Figure 5.1.1. The volatility since 2000 reflects the effect on retail margins of wholesale price volatility.

