Neoliberalism and Energy Poverty: Why corporatisation, deregulation and privatisation doubled the cost of electricity for New Zealand households

Lecture to mark 100 years of Continuing Education at Victoria

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Introductory

It's both a pleasure and an honour to have been invited to give this lecture to mark the centenary of Victoria University's Continuing Education programme. Back in 1915 the programme began with three courses – in electricity, English, and economics. With only 23 teaching staff in 1915, the university necessarily brought in some outsiders, but one of the three teachers of those first courses was the recently appointed professor of Physics at Victoria, Ernest Marsden, who in the preceding decade had worked with Rutherford on the structure of the atom, and who would no doubt have explained the properties of matter and the movement of electrical particles. A second, Mr Foster, the Headmaster of Petone School, presented a course on English. The third, J.B. Condliffe, was a newly-graduated MA in Economics from Canterbury University, who would later go on to be Professor of Economics at Canterbury and eventually, after a stellar career in New Zealand and international economics, a professor at Berkeley. Condliffe is renowned for his histories of New Zealand as well as for his groundbreaking economic research bringing data to bear on practical issues. I'm standing here today very much in Condliffe's shadow, to talk about my own very modest work on the New Zealand electricity industry.

The Issue[1]

Since 1986, the price of electricity supplied to residential consumers has doubled in real terms[2] - that is, household electricity prices have risen at twice the economy-wide inflation rate; see Figure 1. In the 1985 March year the average household price was 4.84 cents per unit or kilowatt-hour (kWh). By 2015 it had risen to 28.86 cents per unit. If electricity prices had risen at the economy-wide inflation rate, as measured by the CPI, the 2015 price would have been 14.08 cents/kWh, just under half the actual level.

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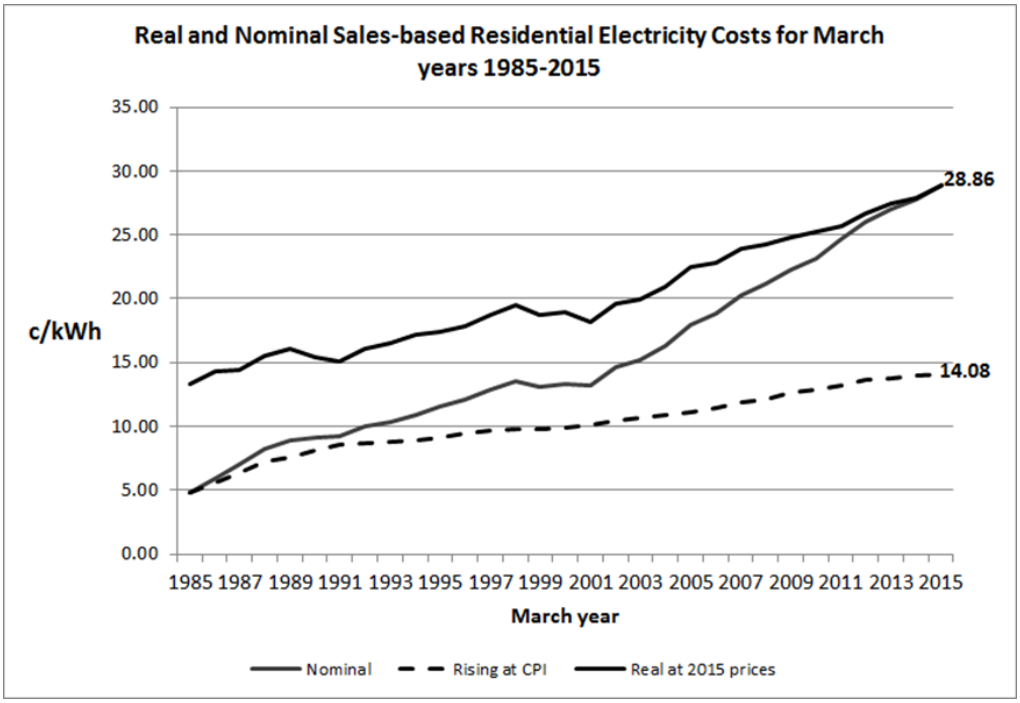
1 This paper expands on some of the points previously made in Geoff Bertram, *Electricity Supply and Poverty in New Zealand*, September 2014, http://briefingpapers.co.nz/2014/09/electricity-supply-and-poverty-in-new-zealand/ .

2 MBIE, *Energy in New Zealand 2015 (2014 calendar year edition)*, http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/publications/energy-in-new-zealand/Energy%20-in-New-Zealand-2015.pdf, p.50 Figure F10a.

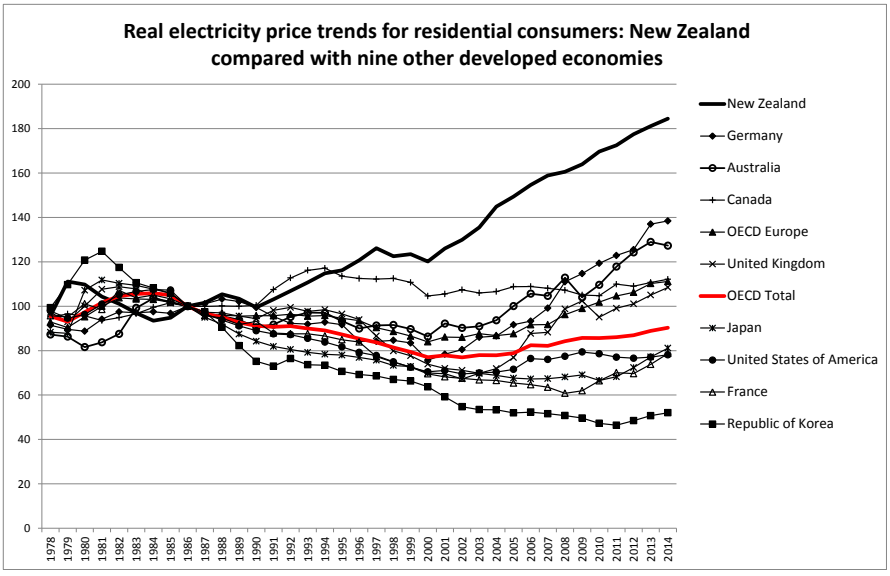
Figure 1



Source: MBIE, graphs and tables underlying 'Energy in New Zealand 2015', http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/statistics/documents-image-library/electricity.xlsx , Figure F.10

The rise in the residential price in New Zealand was unusually rapid by comparison with other OECD economies, many of which also underwent market-oriented reform programmes. Figure 2 shows the comparison.

Figure 2



Source: IEA data. Updated version of Figure 21.9, p.663 of Geoff Bertram, "Weak regulation, rising margins, and asset revaluations: New Zealand's failing experiment in electricity reform", Chapter 21 in F.P.

Sioshansi (ed) *Evolution of Global Electricity Markets: New Paradigms, New Challenges, New Approaches*, Amsterdam: Elsevier Academic Press, 2013.

Because electricity plays an important role in household budgets and demand for it is inelastic[3], this rise of the residential electricity price ahead of general consumer price inflation has meant that other items of household expenditure have been squeezed, and increasing pressure has been placed on households' overall budgets. At the bottom end of the income distribution this has meant increasing fuel poverty as households have found themselves unable to afford sufficient electricity to heat their houses adequately and to run other electricity-using equipment.

Energy (or fuel) poverty[4] in New Zealand has been the subject of important academic research by Bob Lloyd, Philippa Howden-Chapman, and their collaborators[5]. Their conclusions are sobering: an estimated 25% of New Zealand households are now in fuel poverty, defined as inability to afford sufficient household energy to, for example, heat homes to a minimum standard of comfort. In the cold south the figure is well over 40%. A high cost of energy for households drives down households' standard of living in two ways: first by leading them to self-ration their energy use, saving money at the expense of health and comfort; and second by diverting scarce funds from other areas of consumption in order to cover the cost of even self-rationed energy use. O'Sullivan et al note that (2015 p.99):

> In New Zealand … , fuel poverty has not been officially defined, measured, or explicitly targeted, and its crucial effect on children is largely unrecognised…. In the local setting, more so than in other countries, electricity prices are an important driver of fuel poverty, with housing predominantly heated using electric resistance heating.

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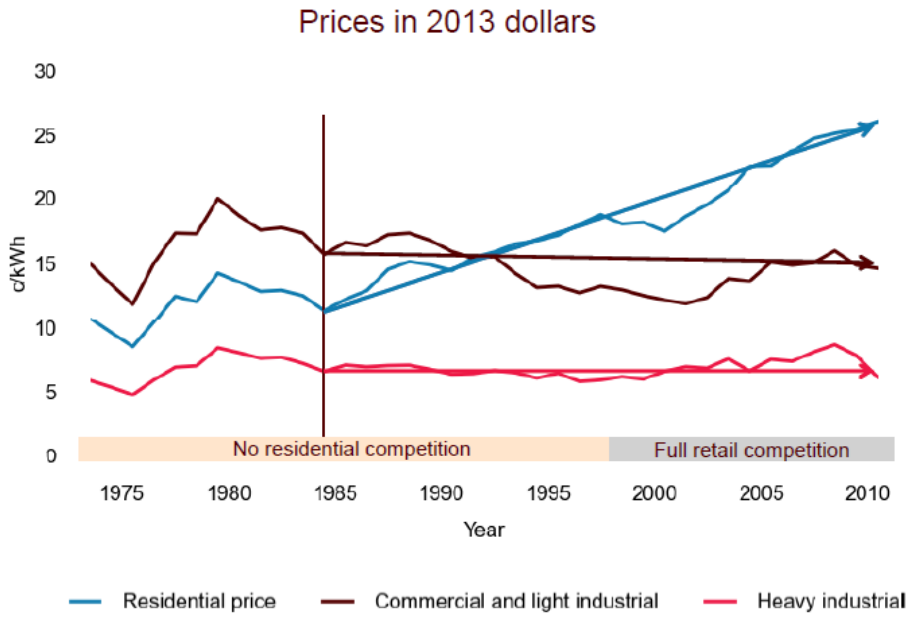
3 That is, the quantity demanded falls proportionately less than the price rises, which means the amount of money spent on the good increases even after taking account of the price-induced fall in demand..

4 On the relationship of these two concepts see Kang Li, Bob Lloyd, Xiao-Jie Liang, and Yi-Ming Wei 'Energy poor or fuel poor: What are the differences?', *Energy Policy* 68: 476-481, May 2014. Strictly speaking I am speaking of what they call fuel poverty (inability to afford adequate energy to meet basic standards of health and comfort) rather than energy poverty (unavailability of energy supply).

5 Bob Lloyd, 'Fuel poverty in New Zealand', *Social Policy Journal of New Zealand* 27(1):142-155, March 2006, online at http://www.physics.otago.ac.nz/eman/hew/econtacts/articlefuelpoverty.html; Philippa Howden-Chapman, Helen Viggers, Ralph Chapman, Kimberley O'Sullivan, Lucy Telfar Barnard, and Bob Lloyd, 'Tackling cold housing and fuel poverty in New Zealand: A review of policies, research, and health impacts', *Energy Policy* 49: 134-142, October 2012; . Kimberley Clare O'Sullivan, Philippa L. Howden-Chapman, Geoffrey M. Fougere, 'Fuel poverty, policy, and equity in New Zealand: The promise of prepayment metering', *Energy Research and Social Science* 7: 99-107, May 2015.

Not all sectors of the economy have faced a budget squeeze comparable to that experienced by residential consumers. Figure 3 shows the contrast between residential electricity prices and prices to industrial and commercial users, in real terms, since the start of electricity sector "reform". While residential prices have soared, those other sectors with stronger bargaining muscle and greater political influence face lower real prices today than before "reform" - though not much lower, and with a strong upward trend in prices in the years prior to the Global Financial Crisis of 2008. As the Electricity Authority's chart makes clear, the introduction of so-called "full retail competition" from 1998 made no difference to the long-run upward track of residential prices – only a brief pause for a couple of years in the late 1990s when the "Bradford reforms" seemed to present a credible threat to the market power of the generators and retailers, followed by a drive to make up lost ground as the threat of regulatory intervention faded away following Labour's return to power in 2000.

Figure 3



Source: Carl Hansen, "Progress with improving electricity industry performance", lecture at NZ Treasury 1 April 2014, http://www.treasury.govt.nz/publications/media-speeches/guestlectures/pdfs/tgls-carl.pdf , slide 3.

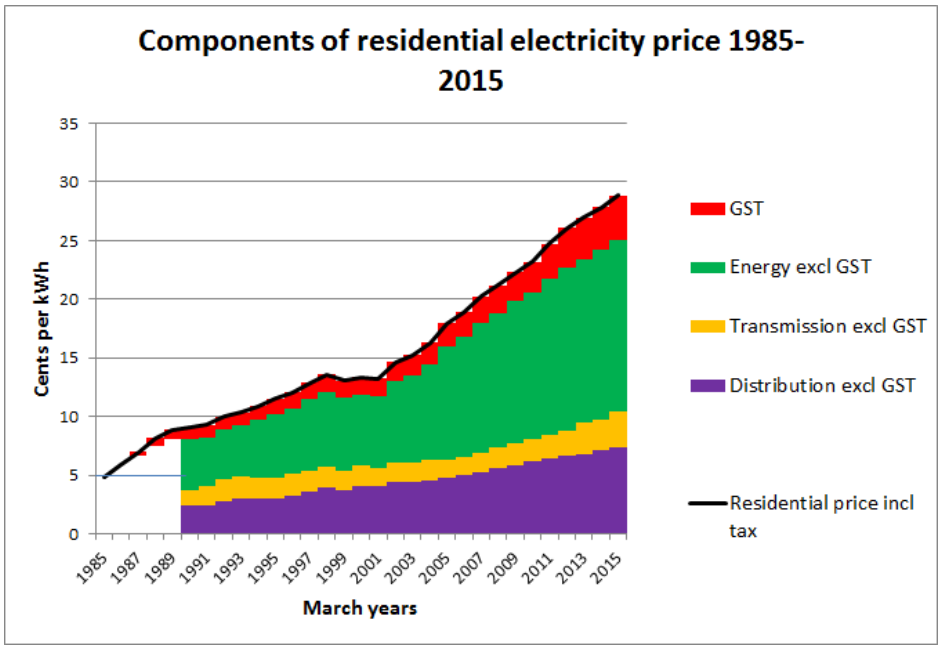
The price increase for households has came from four separate sources:

1. The cost of electrical energy itself, produced by generators and sold by retailers (since 1999 these have been essentially the same firms, vertically integrated as "gentailers").
2. Charges for transmission of electricity over the national grid owned by Transpower
3. Charges for distribution of electricity over the local lines networks

4. GST collected at a rate that has risen from zero in 1985 to 15% by 2015.

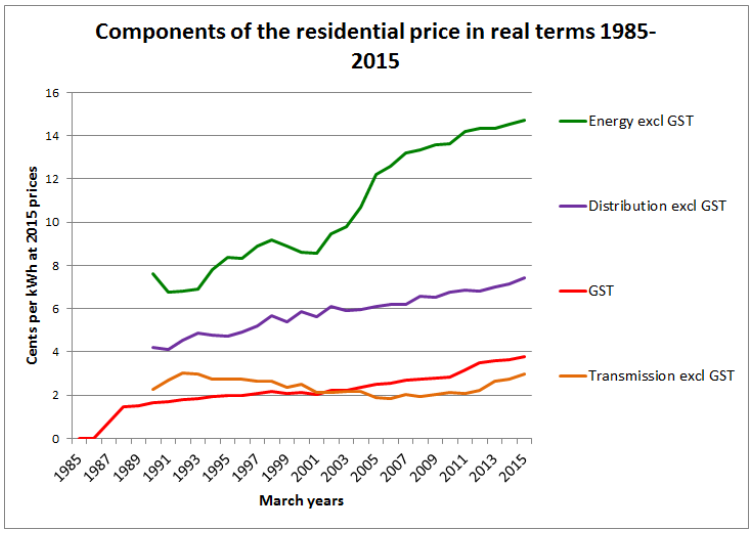
Figure 4 shows my reconstruction of the breakdown – where the residential consumers' money went – since 1989-90 when separate data for lines and energy become available[6].

Figure 4



Deflating these figures into real constant-price money gives us Figure 5, which tracks the four sources of the price increase individually from the late 1980s to 2015. Setting aside GST, there have been two outstanding sources of the increasing price: distribution and energy, with transmission charges turning up sharply only in the past five years.

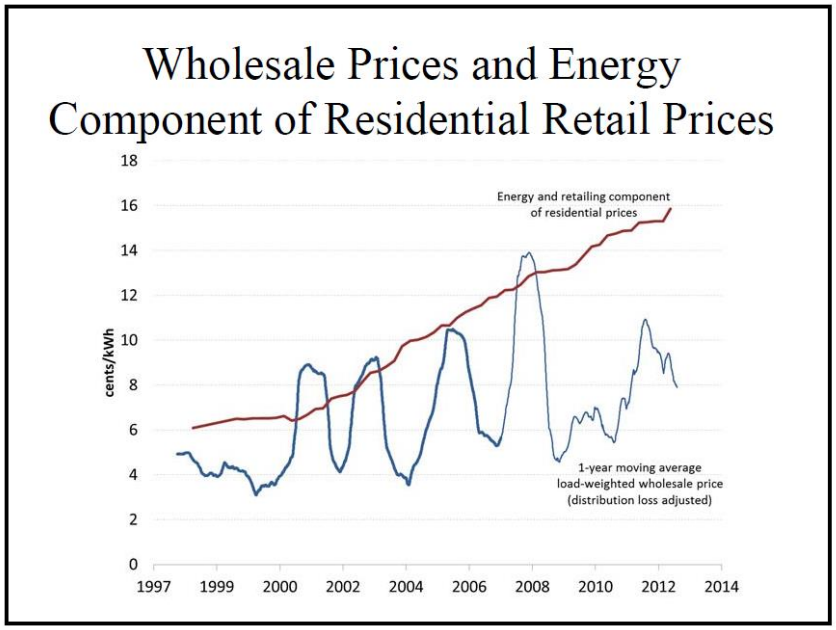
Figure 5



6 1989-90 marks the separation of Transpower's revenue stream from generation revenue within the ECNZ[6] accounts. Distribution line charges from 1989 to 1994 are estimated using the "gross margin" reported by the old electrical supply authorities (ESAs). GST is calculated by applying the relevant rates to the final price.

The energy component of the price is made up of the wholesale price plus the retail markup. Figure 6 shows how the overall markup across the electricity market has soared since 2000 as the dominant gentailers have been able to drive retail prices up to pay for brand promotion, expensive offices, high salaries and bonuses, an expanding array of financial instruments designed to manage "risks", and straight-out profit. Most of that inflation in retail margins was loaded onto residential consumers rather than industrial and commercial ones.

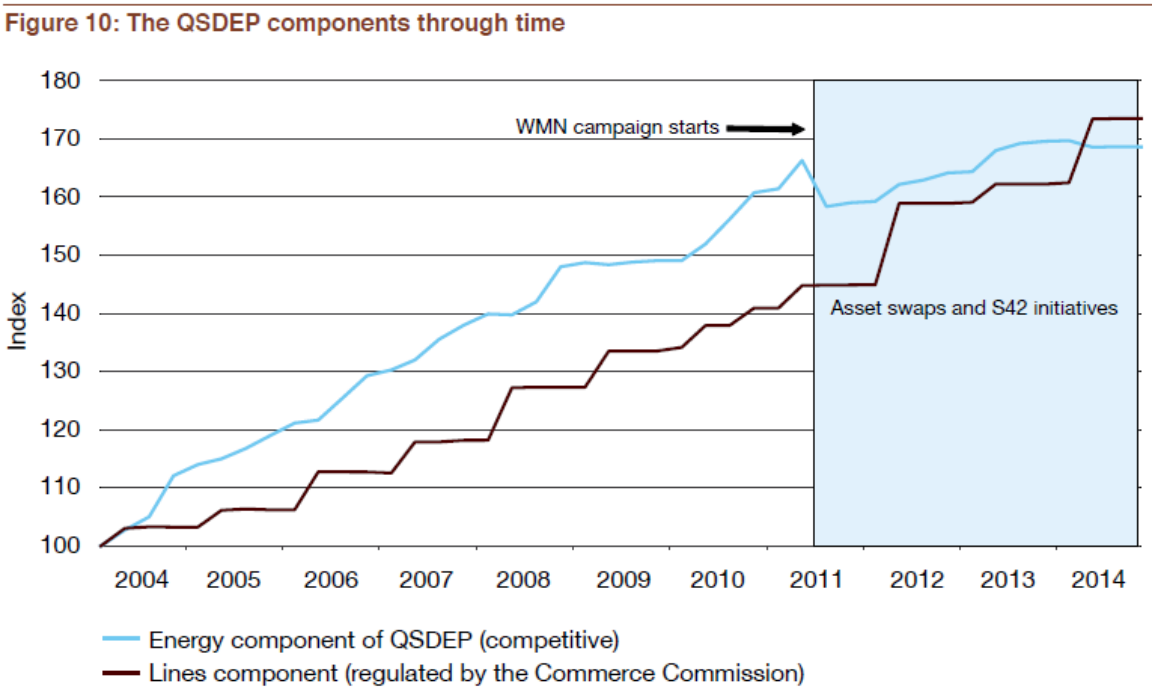
Figure 6



Source: Frank A. Wolak, *Are the electricity supply industry challenges New Zealand faces any different from those in other hydro-dominated markets?*, July 2013, http://www.minterellison.co.nz/files/Uploads/Documents/Seminar%20slides/nz_iscr_presentation_wolak.pdf .

Figure 7, reproduced from the latest Electricity Authority annual review, points out the nominally different regulatory status of energy versus lines: energy is unregulated ("competitive" in the Electricity Authority's terminology) while distribution networks and the Transpower grid are "regulated by the Commerce Commission" with annual jumps due to moving from one regulatory year to the next. Neither "competition" nor "regulation" has had any apparent effect in slowing the upward track of charges in real terms seen in Figure 3, but Figure 6 does show that the Global Financial Crisis and recent falling residential use of electricity have recently slowed the rate of increase of the "energy" component of prices, leaving the level 70% up from 2004.

Figure 7



Source: Electricity Authority, *Electricity Market Performance: 2014 year in review,* https://www.ea.govt.nz/dmsdocument/19165, p.22.

The questions addressed in the remainder of this lecture are three:

- How can we account for the long-run upward trend in the supposedly "competitive" real energy charge?
- How can we account for the long-run upward trend in the allegedly "regulated" real lines charge?
- Why has the burden of rising prices fallen upon residential consumers but not industry and commerce?

The answers to all three questions, I shall argue, lie in the policy settings applied from 1986 on by successive Governments, led by both Labour and National, under the influence of a set of ideas widely known by the title "neoliberalism". Two key pieces of legislation by the Fourth Labour Government set the scene for the story to follow. The State-owned Enterprises Act 1986 converted non-profit, publicly-owned utility operations into commercial, profit-oriented businesses ripe for sale to private interests. The Commerce Act 1986 removed the common-law protections previously enjoyed by consumers, laid the basis for abolition of the existing price control machinery, and transferred decisions to regulate monopoly pricing from courts and tribunals to politicians – specifically, to the Minister of Commerce.

Key aspects of neoliberalism

The neoliberal revolution in economic policy has had many facets, but in this lecture I focus on three:

1. Belief in the supremacy of market mechanisms as the organising principle for human endeavour
2. Strong advocacy of limited government – a general distaste for regulatory and other interventions that expand the government sphere relative to the market sphere of activity
3. A strong absolutist defence of private property rights against so-called "takings", without reference to how those property rights may have been acquired.

Each of these has contributed in a distinctive way to the general rise of inequality in New Zealand society. The history of electricity sector "reform", with its steep rise in residential prices and associated fuel poverty, provides a useful case study of some of the processes involved.

At the outset I want to draw two distinctions. The first is between neoliberal analysts and looters. The second is between the mainstream economics versions of those three propositions and the ideological versions which have tended to shape New Zealand policy since 1984.

Looters are the private-sector players who see the opportunity to get their hands on public assets and make large profits by redeploying those assets. From their point of view neoliberal ideas were useful instruments to batter down the political and statutory defences behind which the valued assets were held, but opportunism is not to be confused with either intellectual coherence or ideological conviction. My concern here is with the neoliberal analysts and the blurred, but real, dividing-line between mainstream economics and neoliberal ideology.

Consider the three areas in turn.

1. *Market mechanisms*. Since Adam Smith's image of the invisible hand, economists have seen the market as an immensely powerful and effective way of organising productive activity for socially-useful purposes, by aligning individual incentives with the greater good. Also from Smith's time on, the economics literature has consistently identified the conditions that must be satisfied for that happy alignment to work, and has shown how socially-malignant consequences can flow from allowing market forces to rule when those conditions are not met. Most importantly, markets tend to "fail" from the social point of view when it is possible for individuals or firms to acquire and exercise market power, because once such power exists there is the prospect of incumbent producers placing barriers in the way of entry by new competitors and gouging wealth from consumers to enrich

themselves. Markets tend to fail when the framework of law and custom within which they operate becomes weak – when, for example, the courts and government of a country lose their independent authority and integrity and fall prey to capture by rent-seeking private interests. In other words, the sphere of market forces has to remain firmly confined to those areas where the invisible hand works benevolently, and market exchange has to be blocked from invading other spheres where its effects are corrupting[7].

What I would describe as the reasonable version of belief in the market takes very seriously these threats of market failure and rent-seeking, and supports strong and effective policy intervention to deal with them. The ideological version makes light of monopoly power and is tolerant of abusive and predatory conduct by players in the marketplace. One example, I would argue, is the New Zealand Electricity Authority's continual claims about the "competitiveness" of an electricity market dominated by a tight cartel of five large gentailers. Another has been the legalisation of monopoly profiteering under the Commerce Act 1986.

2. *Limited government*. Also since Smith, mainstream economics has argued that in the context of a capitalist economy, the sphere of government activity should be limited to activities that are consistent with the most effective possible functioning of the private market. That leaves government with a very substantial agenda, but also with a principled basis for determining its own limits - when it should and should not intervene to restrain or substitute for the market. In another context I have argued[8] that Adam Smith's listing of the "duties of the sovereign" provides a solid philosophical foundation for the twentieth-century welfare state, and for the later concept of a "mixed economy"[9] in which the balance between the public and private spheres in the national economy was struck pragmatically in a way judged to maximise the general welfare.

   Two facets of the state's role are relevant here. The first is the direct supply by the public sector of valued goods and services that in many cases could be privately supplied, but where there are strong public-interest grounds for state ownership. The second issue has to do with the scope and strength of regulation of the private market sphere.

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7 See Michael Walzer, *Spheres of justice: a defense of pluralism and equality* New York: Basic Books, 1983.

8 Geoff Bertram, "Is economics still a branch of moral philosophy?", lecture to Sea of Faith conference 2011, http://www.geoffbertram.com/fileadmin/publications/Economics%20and%20moral%20philosophy.pdf, and presentation to the New Zealand Association of Economists conference 2012, http://www.geoffbertram.com/fileadmin/publications/Is%20economics%20still%20a%20branch%20of%20moral%20philosophy.pdf.

9 C. Westrate, *Portrait of a modern mixed economy: New Zealand*, New Zealand University Press 1959.

The reasonable version of the limited-government doctrine, applied to ownership and control of industries, calls for continual reflection on the issue of whether the public good is better served by public or private ownership of particular activities. Reason becomes replaced by ideology when either public or private ownership becomes a matter of dogma – as occurs for example when one encounters claims that private ownership must always be superior to public without reference to the public-interest issues at stake. In the New Zealand electricity sector, there has been a clear example of such ideological thinking at work in the repeated restructurings of the sector in pursuit of predetermined privatisation and corporatisation goals, without much regard to the public-interest arguments in favour of public control of the sort of strategic assets that used to be described as "commanding heights" of the economy. My argument will be not that corporatisation and privatisation are necessarily bad, but simply that bad outcomes can follow when those things are pursued for their own sake rather than as means to well-defined and socially-desirable ends.

Turning to regulation, if state ownership of electricity supply is foregone in favour of private ownership (as has been the case in the United States since the nineteenth century, for example), there remains the question of how the market power that goes with control of strategic large-scale industry is to be curbed to protect consumers from predatory behaviour. Here again the reasonable position requires that regulation be deployed where there is good reason to regulate, and that once deployed it should be rigorous, effective, and backed by the full authority of the state. The ideological version of the limited-government position denies outright many of the grounds for regulation, and where regulation of market conduct is undertaken, it pitches for the weakest possible form of regulation and the most generous pro-"business" application of regulatory procedures. In the New Zealand electricity industry the first of these – outright denial – has applied to the gentailers, and the second – weak and ineffective regulation – to the lines businesses.

Before leaving the issue of the role of the state I want to dwell briefly on the common practice in modern economics of separating "efficiency" from "equity". Competitive markets may be the most efficient means we know of allocating scarce resources to meet demand for a wide range of the goods and services consumed in a modern society, but however "perfect" they may be, markets are impersonal mechanisms with no built-in moral compass.

Moral issues of right and wrong are thus separate from the efficiency issue of allocating resources to their highest-valued uses. In earlier times economists aspired to provide policy guidance on issues of right and wrong, justice and injustice, but that dream died out in the 1950s and 1960s when it became apparent that, once

utilitarian moral philosophy had fallen out of favour, there was no rigorous economic answer to the issue of determining where justice and the public interest lay. Economists could advise on the efficient achievement of socially-desirable ends, but neither they nor the market could advise on the setting of those ends. Equity questions were therefore dropped by the profession and handed over to the state to determine on behalf of the community. But then the neoliberal project inherited from Hayek and Friedman a deep reluctance to accept the moral judgments made by the state when those judgments ran against their more-market intuitions. To the greatest extent possible, therefore, neoliberal policymakers have sought to tie the state's hands, and to persuade the state to abdicate from intervening to check market forces in relation to, for example, the distribution of income and wealth.

Two key examples of that process of restricting the state's ability to impose moral limits on markets are the State-owned Enterprises Act 1986 and the Commerce Act 1986. The SOE Act converted state entities providing essential services into profit-maximising corporations. To sideline the inevitable complaint that this change in goals might drop overboard important social functions, section 7 was included in the Act to enable the government of the day to direct any SOE to act in ways that ran counter to profit maximisation. The section states

> **7. Non-commercial activities**
>
> Where the Crown wishes a State enterprise to provide goods or services to any persons, the Crown and the State enterprise shall enter into an agreement under which the State enterprise will provide the goods or services in return for the payment by the Crown of the whole or part of the price thereof.

The sting in the tail here is that the Crown must financially pay the SOE compensation for its loss of profits when it pursues social goals for the general good. Not surprisingly section 7 has been a dead letter since the Act was passed.

The Commerce Act 1986 meantime made it legal for any company to take monopoly profits without restriction unless a political decisions was made by the Minister of Commerce under Part 4 of the Act. This explicitly separated political judgments about fairness from the efficiency focus of the remainder of the Act. A key consequence is that the process of actually regulating any monopolistic provider of essential public services is cumbersome, lengthy, and exposed to capture by well-resourced rent-seeking firms. The state's hands are not so much tied here as bogged down in process and overhung by litigation threats.

3. *Private property rights*. The alleged sanctity of private property rights has become increasingly central as the outcomes of two decades of neoliberal reform have come clearly into view: the juxtaposition of growing poverty and extraordinary private wealth, and the accrual on company balance sheets of asset values created not by

honest toil but simply by accounting entries that record successful rent-seeking behaviour. To address the inequality of wealth distribution in New Zealand and elsewhere will eventually require policy interventions that encroach on private property rights, whether by taxes on wealth, market regulations that drive asset values down, direct expropriation of certain assets from their private holders, or other measures. In the electricity sector a few such reforms were canvassed in the 2014 election campaign, where Labour and the Greens proposed introducing a state-owned single buyer into the electricity market with the express aim of recovering, and redistributing, the excess profits and pure rents being taken by the electricity generator-retailers ('gentailers').

I have two comments to make at this stage about the property rights issue. The first is that property rights are not absolute and do not have divine authority. They are a convenient social institution that has evolved and survived because it is functionally useful for the effective organisation of social activity. My second comment has to so with justice in the acquisition and exercise of a property right – a theme explored by the philosopher Robert Nozick[10] whose ideas mostly sit well with neoliberals. A recurrent theme of the past three neoliberal decades has been looting of the public estate by private interests, as assets previously held by the general public and used for the general good have passed into private hands on terms that enriched the new owners at the expense of the public. Whether the resulting concentrations of private wealth are judged to have been "justly acquired" will make a difference to the policy menu.

The more-market doctrine in electricity

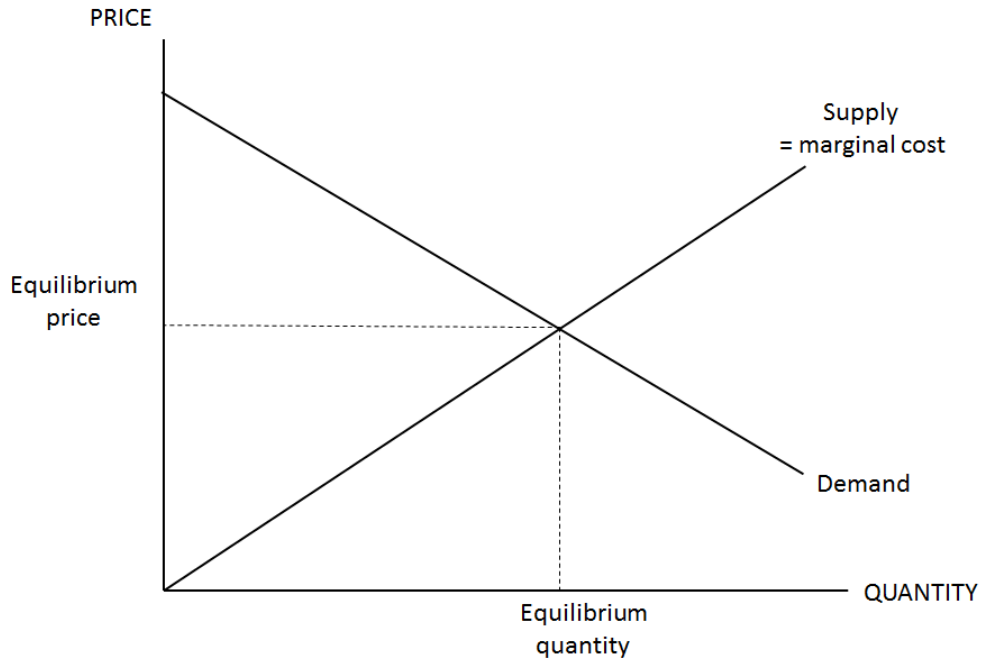
As a general rule in the real world, unrestrained market outcomes tend to favour the rich and powerful over the weak. That, in a nutshell, is my explanation of why residential electricity prices rose while industrial and commercial electricity prices fell or stayed constant in Figure 3 above. Until 1985, Government in New Zealand acted as the protector of small consumers against predation. From 1986 on it largely ceased to do so. Lacking their own countervailing power, and deprived of protection from the state or the common law, residential consumers were the softest target for profit-hungry companies, and suffered accordingly. The Commerce Act 1986 was central to this stripping of protection, because it "swept the common law under a rug" in the later words of the Appeal Court, and shifted decisions about whether to regulate a company or industry out of the hands of independent agencies and into the sole political discretion of the Minister of Commerce. (This is in striking contrast to the removal of monetary policy decisions from political hands into those of an independent central bank.)

[10] Robert Nozick, *Anarchy, state and utopia*, New York: Basic Books 1974.

But there is more to the issue of how the neoliberal quest to turn market forces loose in electricity led to rising prices for households, which brings me to the economists' analysis of the role that marginal costs play in efficient markets.

Many of you will be familiar with the demand and supply diagram taught in all elementary economics courses. The idea is that if the demand curve slopes down, and the supply curve slopes up, then a competitive market price will settle at the price and quantity where the two curves intersect, and that this will be efficient in the sense that everyone prepared to pay the price gets supplied, and everyone prepared to supply at that price finds a buyer. The price brings demand and supply into balance at the margin – that is, where the cost of the marginal unit of supply matches the willingness to pay of the marginal unit of demand. From here it is a short step to the proposition that in an ideal world, price should always be equal to the marginal cost of supply.

Figure 8: Competitive supply/demand equilibrium



There are two important wrinkles in the supply-demand diagram. One is that any suppliers who are "inside the margin", with costs below the market price, will secure a surplus – revenue over and above what would have been required to induce them to produce. This is the yellow triangle in Figure 9. (Total revenue is the sum of the pink and yellow triangles, and total costs are the pink triangle.) If you think of low-cost hydro generators at the bottom left-hand end of the supply curve, and high-cost coal-fired stations up to the right, then under competitive conditions hydro plant will become increasingly profitable as expanding demand pushes the demand curve to the right and drives the market price up at the margin. The owners of hydro dams can collect that surplus as free cashflow so long as all generators get the same price, and so long as they don't have to pay any taxes or

royalties designed to recover the value of the water running through their turbines. In the case of hydro generators, the yellow surplus triangle is what economists call rent – a stream of income that is not earned by any effort on the part of the supplier, but simply drops into their laps because they are sitting on some low-cost source of supply.

Figure 9: Producer surplus

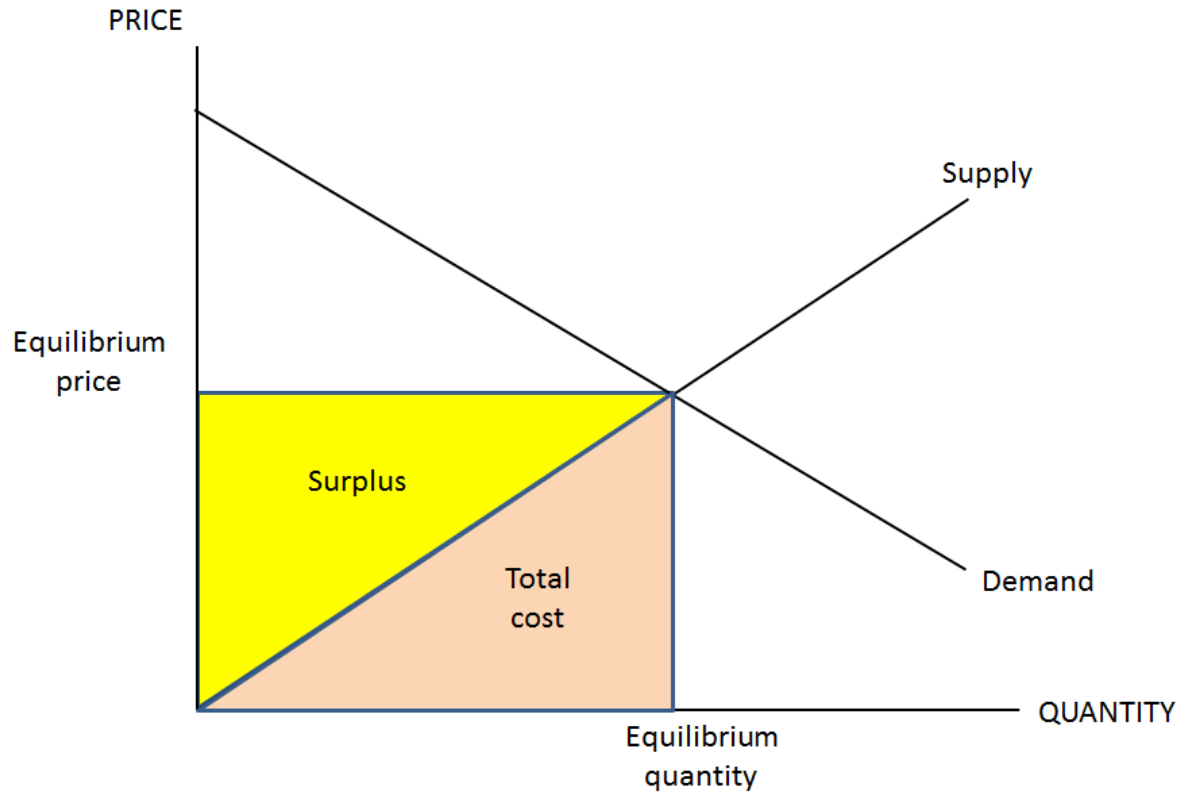
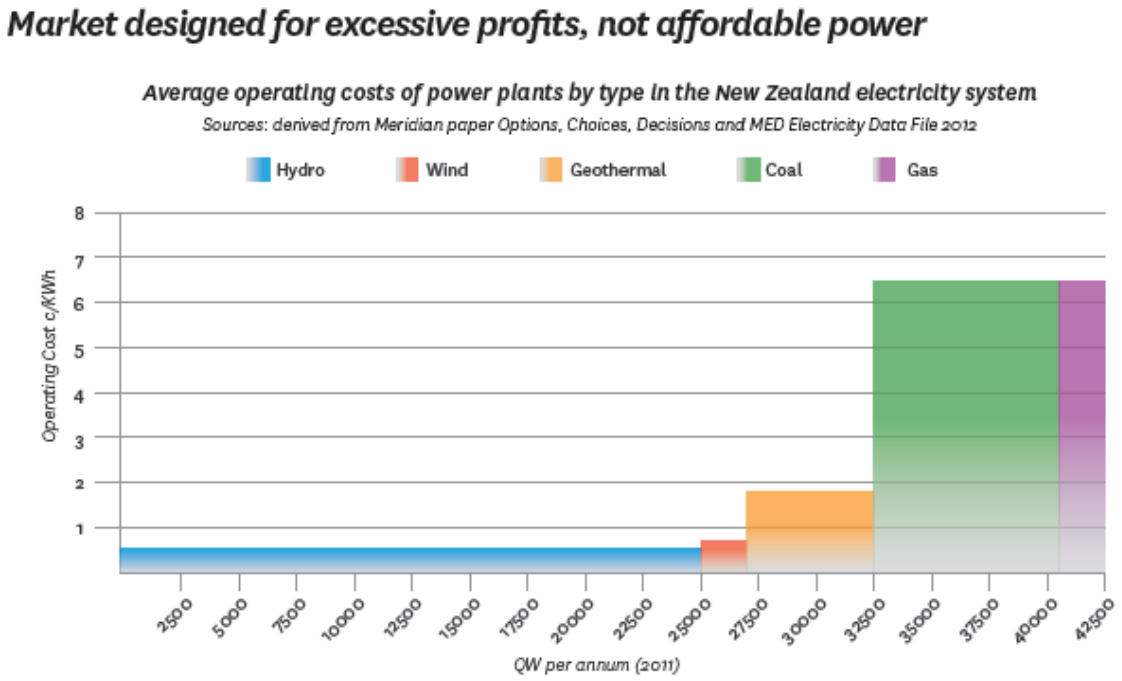


Figure 10, from a Green Party document produced before the 2014 election[11], is a simplified but not grossly misleading sketch of the situation at the generation level of the electricity industry. The size of the rent component of total market revenue is debated (over and above the operating costs shown in Figure 10 one has to allow for fixed costs funded out of the gross surplus), but is definitely several hundreds of millions of dollars. To date the most successful raid on that rent has been by the Tiwai Point aluminium smelter, whose low-price contract means that it captures, in the form of cheap electricity, a chunk of surplus that otherwise would be profit for Meridian. The Greens and Labour policies at the last election offered variants on this approach of imposing one or more low-price wholesale contracts on suppliers inside the margin of the market, as a means of funding rebates or transfers to residential consumers[12].

[11] Green Party, *Empowering New Zealand: Green discussion paper*, April 2013, https://home.greens.org.nz/sites/default/files/empoweringnz_final.pdf, p.5.

[12] Green Party 2013, and *New Zealand Power: Energising New Zealand*, Labour Party policy document, April 2013, https://www.labour.org.nz/sites/default/files/issues/policy-nzpower.pdf.

Figure 10



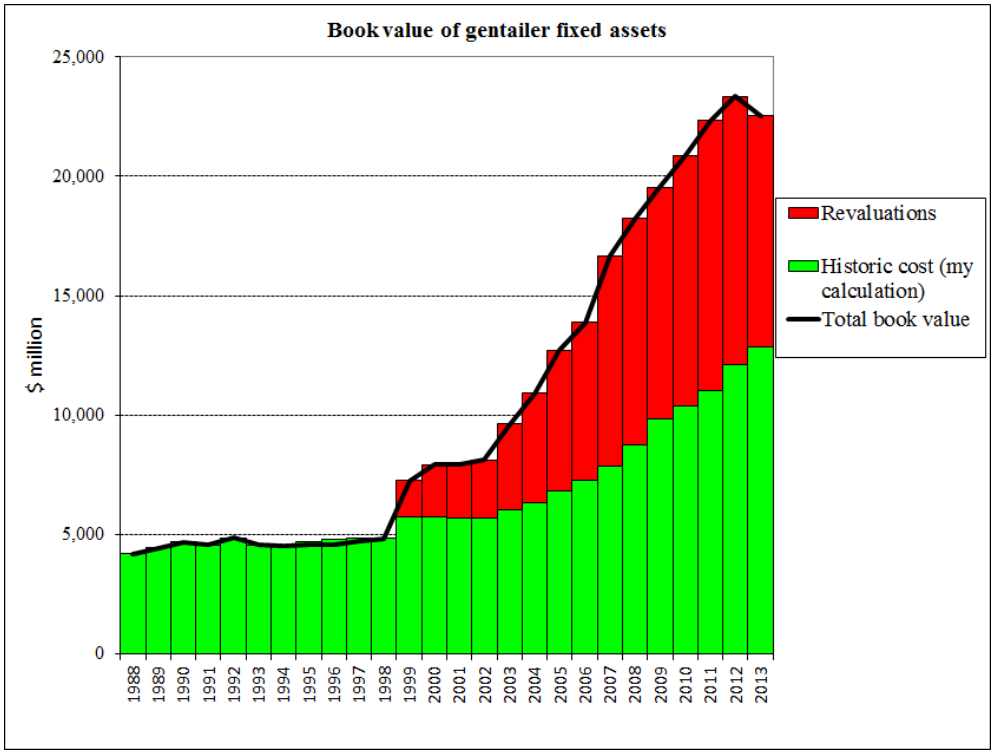
Rent can be taken away without incentivising the low-cost producers to leave the industry, because they will still cover all their costs (the pink triangle in Figure 8). At the margin of the market, consumers and suppliers would still face the efficient price; but some or all of the infra-marginal surplus would be taken and transferred. In other words, transferring functionless rents from low-cost producers to other parties has no efficiency implications – the issues it raises are equity, not efficiency, ones. Bare transfers are, by definition, a matter of winners and losers: under the Labour/Greens 2013 policy the owners of low-cost hydro plant would have lost, and would have been correspondingly agitated. But whether the transfers are judged "fair" or "unfair" will depend on the moral compass used and the degree to which private property rights are considered entrenched and sacrosanct.

In short, the generation side of the New Zealand electricity industry, with its large portfolio of long-established renewables-based generation assets, is a massive cash cow if allowed to operate without restraint under competitive conditions. Increasing the level of competition in the market is irrelevant to the scale of the rents – they arise from the high cost of supply at the margin of the market, not from the lack of competitive pressure in the market (that's a problem too, but that's another story). As you would expect, much effort on the part of the existing generators goes into ensuring that the marginal cost stays high, by obstructing new entry and by demolishing generating stations that might contribute to security of supply and thus reduce the chance of shortages driving the wholesale price up.

Big cashflows do, of course, mean that the companies holding the generation assets have a high market value, and accounting rules mean that this value must be recorded somewhere.

In the case of the generator-retailers this has been done by repeatedly revaluing (raising) the book value of their fixed assets. The size of those revaluations tells us the amount of wealth transferred from electricity consumers to the owners of the gentailers as prices and profits have gone up over the past two decades. The sums involved are quite large – around $10-12 billion, which includes the extra profits secured from the cartel's high retail markups, and the extra rents they collect as the Emissions Trading Scheme raises the marginal generation cost of fossil-fired plant. But a big chunk of the revaluations reflects simply the hydro rent resulting from raising prices to the margin in a competitive wholesale market.

Figure 11

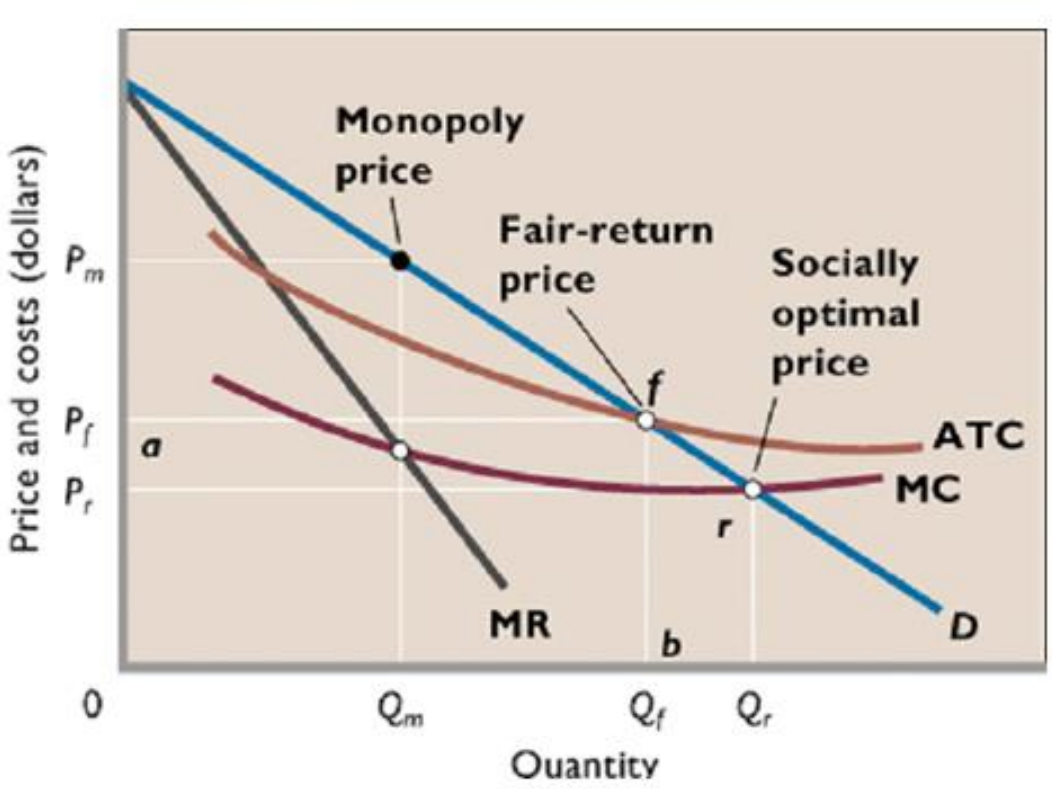


Here then is the first key point at which the market-supremacy mindset exposed residential prices to steady upward pressure as the cost of generation at the margin rose with rising demand. No amount of increased competitive pressure can touch the rents of the generators, but the endless official talk about the competitiveness of the electricity market has largely hidden this from public view.

Turn now to the second wrinkle in the supply/demand diagram. What if the supply curve slopes down, not up? This, for example, is roughly how the national grid, and the distribution line networks, look. They have large fixed costs which fall in per-unit terms as volume supplied increases – a situation of economies of scale, which often means that the efficient market solution is one of natural monopoly (since one supplier, once established, can automatically undercut any would-be new entrant). Now the supply curve itself in a strict sense disappears, and the relevant diagram is the more complicated textbook one in

Figure 12. If we follow the marginal-cost pricing rule, the price secured by the monopolist will be less than the average cost of supply and the firm will make a loss. If a single price is set by a regulator to enable the firm to break even, it will sell less than the optimal quantity. If left free to set its own single price, in the simple textbook story the profit-maximising monopolist would charge above the fair-return price and supply even less.

Figure 12: Natural monopoly



Traditionally, there have been three ways to secure efficient supply from industries of this sort. They may be told to supply the efficient quantity and have the resulting losses covered by subsidies from taxpayers (as is still to some extent the case with Kiwirail). They may be allowed to impose fixed charges on their customers, over and above the marginal-cost price, to cover their fixed costs (this is currently the pricing model for electricity lines companies). Or they may be combined with an increasing-cost industry into a single firm that can transfer surplus in-house from one operation to cover the losses of the other. This last arrangement was the pre-corporatisation situation with the New Zealand Electricity Division (NZED) which owned and operated both the generation system and the national grid, and charged a single price (the Bulk Supply Tariff[13]) to cover all the costs of both operations.

The beauty of this was that consumers were supplied at the lowest price consistent with covering the total costs of wholesale supply (generation and the grid), by means of an

[13] For description see John Boshier, "New Zealand electricity supply", MIT Working Paper MIT-EL 76-026WP, October 1976, https://dspace.mit.edu/handle/1721.1/27850.

internal set of transfers within NZED. But in neoliberal eyes this administrative set-up was inferior to a restructured situation in which generation was established as a separate commercial operation under competitive conditions with its price set at the margin, while transmission was separated off as a separate monopoly allowed to recover its fixed costs by imposing fixed charges. At a stroke, the separation of the NZED portfolio into Transpower and ECNZ Generation drove up the total amount consumers would have to pay, because ECNZ continued to collect the rent on its hydro stations but was freed of the need to cover the fixed costs of an efficient grid, while Transpower imposed fixed charges on its customers to make up those losses.

If the Government had wanted to ensure that consumers could continue to have electricity supplied at the lowest possible total cost, it would have been logical to levy ECNZ's hydro rents to continue to cover the fixed costs of the grid, or at least to shield consumers from having to pay for both grid fixed charges and newly-liberated ECNZ rents. This was the idea advanced at the time by myself amongst others[14], but it received short shrift from those of neoliberal mindset. The prospect of imposing a low-price supply contract on ECNZ to capture its rents and bring down the final price to consumers was instantly rejected by the CEO of ECNZ as "very regulatory", and never gained traction with the politicians who would have had to force ECNZ into compliance.

The less-government doctrine in electricity: lines regulation

I turn now to the alleged regulation of lines companies – both the Transpower grid and the local distribution networks[15]. The issue here is quite simple: these operations are natural monopolies because of their large fixed costs and low marginal costs of supply. In New Zealand up until the 1990s they were not profit maximisers but simply cost-recovery operations, with local networks run by elected Power Boards or city council departments. Once transformed, by corporatisation, from not-for-profit public-service utilities with social and engineering objectives into single-minded profit maximisers, it followed fairly naturally that they would be motivated to raise the value of the assets they inherited from the old

[14] Geoff Bertram, Ian Dempster, Stephen Gale and Simon Terry, "Hydro New Zealand: Providing for progressive pricing of electricity in New Zealand", Wellington, March 1992; Geoff Bertram, "Non-linear Pricing Theory: The case of Wholesale Electricity pricing in New Zealand", *New Zealand Economic Papers*, 30(1):87-108, 1996, http://www.geoffbertram.com/fileadmin/publications/Non-LinearPricing1996.pdf .

[15] This section is based on Geoff Bertram, "Light-handed regulation of the energy sectors" in In *Flawed theory, failed practice: light-handed regulation in New Zealand*, pages 51-72. NZ Fabian Society, 2014, http://www.geoffbertram.com/fileadmin/publications/Fabians%20book%20chapter%202014.pdf, and on Geoff Bertram and Dan Twaddle, "Price-Cost Margins and Profit Rates in New Zealand Electricity Distribution Networks Since 1994: The Cost of Light-Handed Regulation", *Journal of Regulatory Economics*, 27(3):281-307, 2005, http://www.geoffbertram.com/fileadmin/publications/Price-Cost%20Margins%20and%20Profit%20Rates%20in%20New%20Zealand%20Electricity%20Distribution%20Networks%20Since%201994.pdf.

order, and in the process raise their prices to consumers as far and as fast as they could get away with. Commonsense thus dictated that they be subject to some form of regulatory restraint, and the neoliberals among the policy elite conceded this in principle – but only, it is now apparent, as a token gesture.

As the Electricity Authority continually reminds us, lines businesses are "regulated by the Commerce Commission", just as prior to 2004 they were declared to be "regulated by information disclosure". For the ordinary public the mere use of the word "regulated" gave, and gives, a veneer of respectability to the pricing and asset valuation outcomes that followed corporatisation and large-scale privatisation of electricity lines networks during the 1990s.

The neoliberal world view, however, largely discounts both the idea and the effectiveness of regulation, seeing it as administratively complex and an unwelcome intrusion by bureaucrats into the commercial market sphere of prices and profit. The way to reconcile this world view with the political need for public credibility turned out to be quite straightforward: Government talked loudly about regulation and the threat of state intervention but constructed a system that did nothing effective to restrain the exercise of their market power by these natural monopolies.

Contestability theory

Economists versed in the industrial organisation literature are familiar with the notion that even unregulated natural monopolies face a form of market discipline: the threat that if they price above the efficient cost of new entry, they can be displaced by a competitor able and willing to supply the entire market at the lowest possible price consistent with securing a normal return on capital. This theory of "competition for the market", as distinct from competition within a market, has genuine intellectual credentials[16] and in principle does identify a long-run equilibrium limit to predation by natural monopolists. With no barriers to entry (or with regular tendering-out of the right to operate a natural monopoly operation – a process known as a "Demsetz auction"), the natural-monopoly firm will in theory be motivated to charge its customers no more than the break-even ("fair-return" in Figure 10) amount of total revenue. A commercially-driven management will then have the full market-driven incentive to reduce costs to the minimum efficient level. Regulation is then redundant – the neoliberal's ideal outcome.

In the context of New Zealand lines businesses at the beginning of the 1990s, however, there was the problem of getting to the situation where contestability could 'bite'. The 1994 starting point was a world of self-regulated, non-profit, socially-motivated, collectively-owned operations, carrying their fixed assets at historically-determined values far below the

[16] Harold Demsetz, "Why regulate utilities?", *Journal of Law and Economics* 11(1): 55-65, April 1968.

amount that it would cost a new entrant to rebuild each network from scratch, and with prices set to secure only as much revenue as was required to keep the system operating and in good order. The new corporatised companies would face contests for their markets only if they valued their assets, and set their prices, at or near the level a new entrant would have to do. To get to the situation where regulation could be argued to be redundant, the lines companies would have to raise their prices, profits and asset values quite radically.

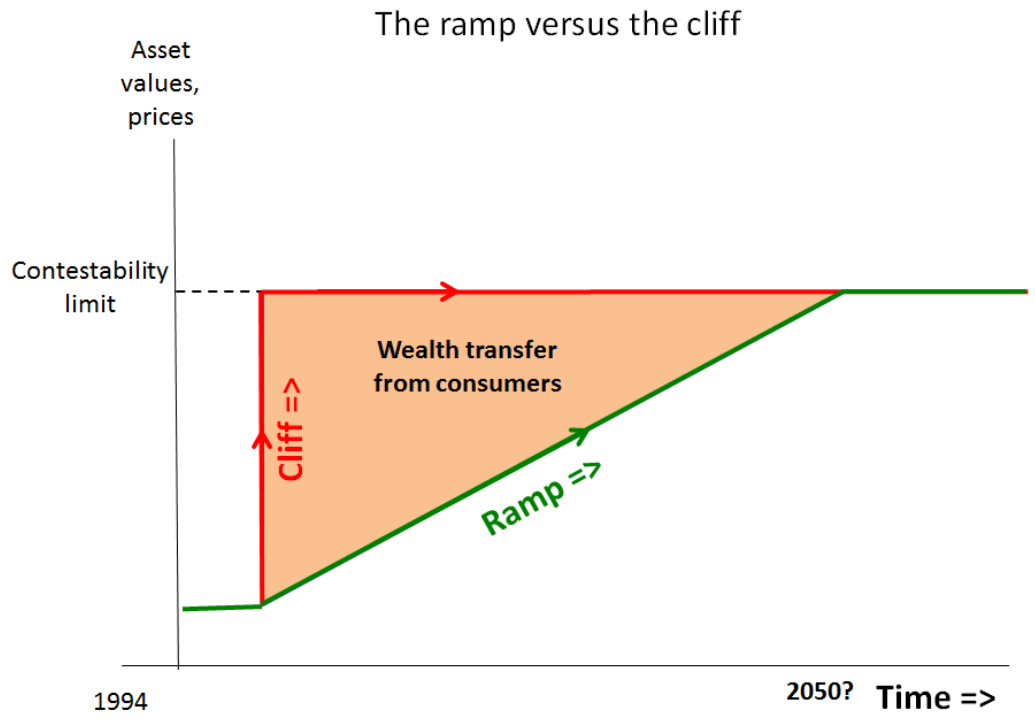
So the second half of the 1990s witnessed a strange charade being played out, in which Government ministers and officials repeatedly assured the public that under open information disclosure and full freedom of entry, the industry would somehow be restrained from exercising its newly-granted market power and freedom from social goals, while behind this rhetorical screen the lines businesses were encouraged to go ahead with revaluing their assets up to the contestable-entry level, and were allowed to pocket all gains they could secure from cost-cutting and price hikes. By 2000 the local networks had helped themselves to $2 billion of asset revaluations, representing a straight-out wealth transfer from the electricity-consuming public to the owners of the lines networks. They were following in the footsteps of Transpower, which at the beginning of the decade had similarly revalued its fixed assets up to "optimised deprival value" – the term of art for the estimated valuation at which the market became (in theory) contestable. Information disclosure, which was nominally supposed to operate as a regulatory constraint on the exercise of market power, became instead simply a matter of recording its exercise.

The information disclosure regulatory regime was eventually, and deservedly, discredited in the eyes of the public, as no more than a legitimation of monopoly pricing. A change in regulatory regime became politically unavoidable, and in due course the Commerce Commission was handed the task of providing a regulatory rubber stamp for the lines networks' prices, enabling them to fend off all criticisms with the rejoinder that they are "regulated". The new regulatory regime purports to limit the allowed revenues lines companies can collect from their customers (though on occasion when a lines company is found to be charging too little it may be prompted to sharpen up its behaviour). There are borrowed notions such as "CPI-X" used to give the impression of harsh discipline being applied, when in fact X is routinely set to zero, meaning that the companies are assured of automatic indexation of their prices to inflation regardless of what happens in their particular markets. The notion of "building blocks" now being used to calculate allowable revenues gives the appearance of mimicking the long-established and reputable practices of US regulatory commissions, but in practice is easily manipulated by the companies.

At the heart of the building blocks approach is the idea of a regulatory asset base (RAB) representing the value assigned to the fixed assets, on which a guaranteed percentage return is allowed to be collected via prices. That asset base is no longer related to any idea of contestability of the market. Once the contestability doctrine had served its purpose of

legitimating the unilateral revaluations of 1994 – 2004, it was dropped overboard in 2004 in favour of "deemed historic cost", which amounts to assuming that the existing companies had actually paid the full replacement cost for their inherited assets and were therefore entitled to earn a rate of return on the higher value. With the higher asset base locked in by the "regulator" and with returns on this gold-plated number guaranteed, the expensive and complex regulatory proceedings are limited largely to detailed arguments about how high the rate of return is to be. The asset value itself is "sacrosanct" as a property right[17].

Figure 13



What would have been the outcome if the network assets had been valued from the start of corporatisation at the levels they had under the old public-ownership model – that is, under an historic-cost regulatory model of the US variety? That would have held the assets at historic-cost values, starting from their book value at corporatisation and allowing them to increase only when money was actually spent on adding new assets to the portfolio. Reductions in operating costs achieved by commercial-minded management would have been passed through to consumers via price reductions in the next round of regulation. Both the short-term and the long-term benefits to consumers could have been massively greater under that alternative – but it would have entailed precisely the sort of tough-minded administratively-driven regulatory intervention to check market forces that neoliberal thinking abhors.

[17] Cf Unison Networks, "Managing risks in an uncertain world: presentation to IM review problem definition forum", www.comcom.govt.nz/dmsdocument/13486, final slide.

Property rights

Secure property rights, sanctity of contract, and the rule of law opened the way for the historic emergence of the modern economy, and there are strong arguments for protecting them within reason, so long as they continue to contribute positively to the general welfare. But they are always subject to reasonable tests of social utility. Particular property rights can be overruled where there is good reason and due process is followed. (The seizure and crushing of boy-racers' cars, for example, was not widely objected to among right-wing opinion.) Taxation, so long as it is democratically agreed upon, is a legitimate encroachment upon private wealth. So is regulation that corrects a market failure at the expense of those who have profited from the failure. The notion that the owner of any asset that suffers a loss of value as a result of regulation in the public interest must be entitled to full compensation has been a perennial theme of the Act Party in New Zealand, with its continual attempts to legislate compulsory compensation for "regulatory takings", but when asserted as an absolute it fails to meet the test of reasonableness, and becomes simply ideological.

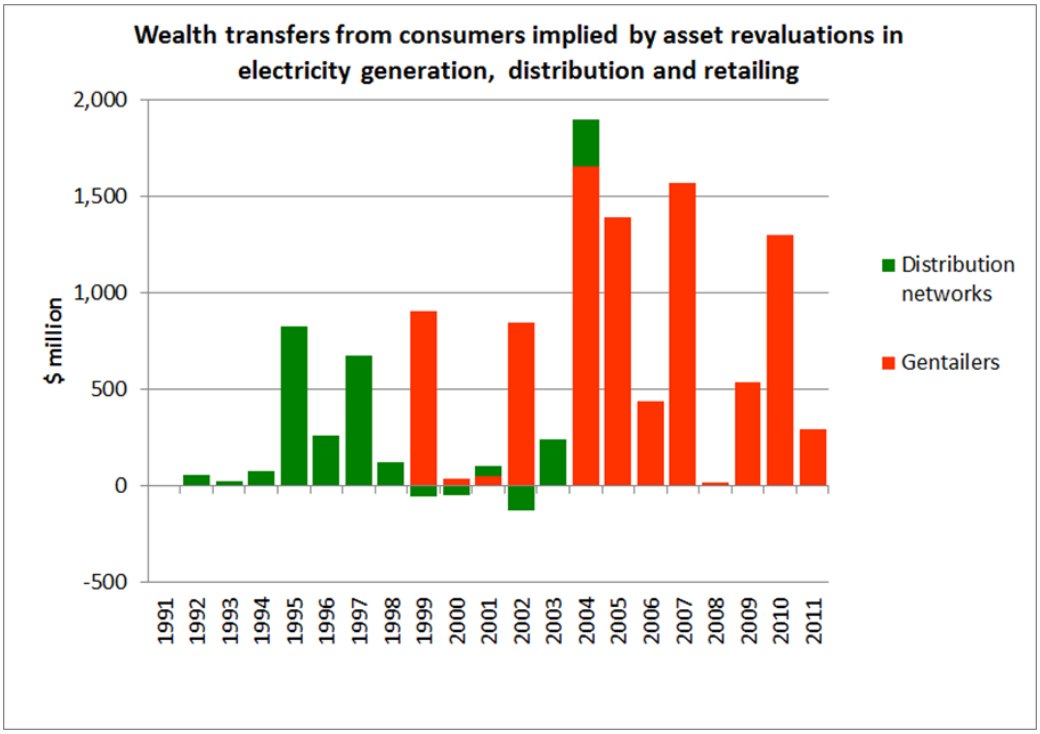
One controversial set of property rights have been those secured by "privatisation of the commons", an especially conspicuous example of which relates to the ownership of water (and geothermal steam) in New Zealand. Water has been generally viewed as something freely provided in nature that has been utilised and enjoyed in common by all New Zealanders – a view encapsulated in the statement that "nobody owns water". However, when water is passed through turbines to generate electricity it is converted into a market value, and the issue of who is to appropriate that value arises. Until 1986, the value of falling water was held by the Crown and passed through to all consumers of electricity via electricity prices. The Crown then signed a deed with the newly-established Electricity Corporation of New Zealand under which the corporation was guaranteed continued freedom from payment of any royalty for the water it used, but was no longer required to pass that benefit through to electricity consumers. The Corporation, and its successor SOEs, were left free to raise its prices and collect the resulting rental value of royalty-free water as pure profit. The result was that as electricity prices rose, a growing transfer of wealth took place from the public of New Zealand, as effectively the previous owners of the water commons, to the asset values of the generators. The sums involved were large – many billions of dollars – and they are now crystallised in the share values of the part-privatised companies. It does not appear to me that this *de facto* property right in water was justly acquired under any regulatory bargain[18], but it is clear that the ongoing high electricity prices being paid by New Zealand households are sustained partly by the inability of those

[18] Geoff Bertram. "Is there a 'regulatory compact' regarding gentailer asset values and revenues? Is so, what does it say?" , presentation to IGPS symposium on proposals to restructure the electricity market, July 2013, http://www.geoffbertram.com/fileadmin/publications/Bertram%20presentation%204%20July%202013.pptx.

households to assert any claim on the value of the water. It follows, in my opinion, that it would be entirely reasonable for a future government to impose a water royalty on the generators, with the proceeds disbursed to the general public – perhaps as a rebate on their electricity prices, or perhaps via some other avenue. The immunity from water royalties granted by the 1988 ECNZ Crown Sale Deed was eliminated in 2013[19] which means that the hydro generators currently are collecting a very large stream of profits that is the result simply of their unilateral assertion of a property right over water, simply by virtue of their possession of the dam structures required to harness it. This reminds us of the old argument for public ownership of "commanding heights" in the economy, but it also reminds us of the fact that assertion of the right to gouge the public simply by virtue of ownership of a bottleneck asset is ultimately contingent on public tolerance of such hold-up tactics. (The spectacular castles of the Rhine gorge stand as mute testimony both to the power of hold-up potentially held by the ownership of a strategically-placed bit of physical infrastructure, and to the public-interest case for that power to be extinguished by central authority.)

The wealth transfers from consumers to suppliers have been substantial; Figure 14 shows my estimates of the timing.

Figure 14



[19] "Mighty River Power IPO – removal of indemnities", press statement from the Minister for State-owned Enterprises, Hon Tony Ryall, 26 March 2013.

Conclusion

Summing up, what have we seen? Public provision of essential services such as electricity, gas, water, telecommunications, roads, railways, ports and airports was central to the social contract underlying the twentieth century welfare state and mixed economy in New Zealand, as elsewhere in the developed world. These services were provided universally and as cheaply as possible, enabling ordinary people to build their living arrangements around the assurance of affordability. One consequence of an assured supply of cheap electricity was that New Zealand houses, and water heaters within those houses, tended to be poorly insulated, with their occupants relying on abundant low-cost energy.

The price of electricity for residential consumers doubled under neoliberal reforms because

- Government stepped away from treating electricity as an essential public service and at the same time abandoned its view that consumers were entitled to protection by the state. With the common-law about essential facilities suppressed by the Commerce Act 1986, this left suppliers in the market free to target their price rises at the least powerful and most vulnerable group of consumers
- The shift to having electricity prices and costs disciplined by market forces rather than by the social objectives of non-profit public enterprise meant that the increasing-cost segments of the industry – generation and retail – would move to marginal-cost pricing, while natural-monopoly segments (lines) would move to two-part tariffs calibrated to hold average prices just inside two constraints: the constraint of contestable market entry, and the constraint of political tolerance. From the starting-point prices of the mid 1980s, this meant substantial price increases over two decades.
- The separation of generation from transmission put an end to the NZED bulk-tariff pricing arrangement whereby grid losses were covered in-house by generation surpluses. Once separated, generation could price at marginal cost and retain the resulting rents, while the grid had to make up for the lost in-house transfers by raising its stand-alone prices.
- Marginal-cost pricing implies large rents for low-cost suppliers such as the hydro generators. Those rents are immune to competitive pressures – their capture and redistribution requires policy intervention by taxes, long-term contracts, expropriation or something along those lines. At present the gentailers are asserting and exercising a *de facto* property right to water.
- Regulation of lines companies was never serious, and looks like a caricature of the neoliberal critique of regulation in general: weak, confused, and thoroughly captured by the supposedly regulated market players. Under this regulatory regime, asset values were doubled by a stroke of the accountants' pens, then locked-in by deeming them to be historic costs and indexing the related regulatory revenues to inflation.

- Cartel conditions in the generation and retail markets from 1999 have enabled the big five to inflate their retail margins without attracting a political response (which is what would have been needed given that monopoly profits are legal under the Commerce Act 1986).

The neoliberal regime in electricity comes as a complete package of interlocking pieces that are mutually-supporting and very difficult to unpick once embedded. To bring residential prices down again would require one or both of two things:

- A new willingness on the part of the New Zealand Government to do some regulatory "taking", overriding the inevitable appeals to the sanctity of property rights. If that willingness were to emerge, the first obvious step would be to charge the hydro generators for the water they use from the public domain.
- Market forces eroding the market power of the incumbent firms; watch this space for the evolution of rooftop solar and other local self-supply options.