Infratil Update

September 2013
Issue No. 38

Householder

"My electricity bill has risen, again!"

Electricity industry guru

"The 25 year industry restructure has delivered efficiency, reliability and vigorous competition"

Householder

"Why has my bill risen?"

Politician

"I have seen the light, it's electric and can be cheaper"

After almost 25 years' of reform the average New Zealand household electricity bill has risen from $61 a month to $183. Can paying $1,470 more for a year's power be compatible with an industry getting it right or is it time for a change? *

This Update sets out an explanation of the higher costs, showing that of the $1,470 average annual increase:

$635 reflects price inflation and higher GST
$595 is due to higher line/grid/meter/retail back office costs
$240 comes from increased wholesale electricity prices

Recently, the Green and Labour parties released proposals which they claim would reduce the price paid to generators and ultimately by consumers. We think they have got it wrong and the proposals would hurt rather than help households and would impose other economic costs. This Update explains why electricity prices have risen for households and reviews the Green/ Labour proposal.

In effect the Update is a submission on the proposal which is tricky as the announcements lack details and specifics. The reason we have taken this step now is because the policies as outlined have the potential to significantly harm consumers and investors in a sector that is critical to New Zealand.

Investors recognise that the potential restructure of the electricity market would impose costs on generators, and they have discounted the value of TrustPower accordingly. This is more than just "tough luck for shareholders", it increases TrustPower's - and Infratil's - cost of capital and makes it much harder to make new investments.

We hope our contribution to the debate will result in a reappraisal and amendment to the policies and less uncertainty.

It is hoped this Update encourages debate on the issues covered. Those with an interest are invited to make submissions on **Infratil's Facebook page.**

* The electricity bill is based on 8,000 kWh annual use. The prices are derived from New Zealand average residential prices for the March years ended 1990 and 2013, published by the Ministry of Business, Innovation and Employment. Since 2002 the average price is based on the Quarterly Survey of Domestic Electricity Prices, which has been adjusted to account for the estimated impact of the Contact Energy on-line, on-time discounts. Prior to 2002 the average price is derived from the March year Annual Statistical Returns as published in the Energy Data File.

Fuel Prices & Fuel Poverty

A German visitor to New Zealand 15 years ago remarked on how cold our houses were. Where was the double glazing and insulation?

At least part of the shortcoming came from electricity previously being cheap; why insulate when you can heat? Unfortunately people willing to purchase a drafty house because of low energy prices were hurt when those prices rose. There is no easy solution or way to turn back the clock.

Government's response includes subsidised insulation, encouragement of consumers to shop around for cheaper electricity, and industry strategies aimed at making the generation, distribution and sale of electricity as efficient as possible.

Today New Zealand has residential electricity provided via highly competitive generation and retail markets over highly regulated lines. If a householder has made the effort to make sure they are using the most suitable retail plan, they can be confident that their electricity price is a fair reflection of the cost of generation and transmission.

However, many households in New Zealand are still struggling to keep their homes warm in winter. Industry efficiency: "yeah right".

Perhaps more can be done, such as improving the state of rental housing through "warrant of fitness" standards or the targeted energy-subsidies provided in Australia or UK.

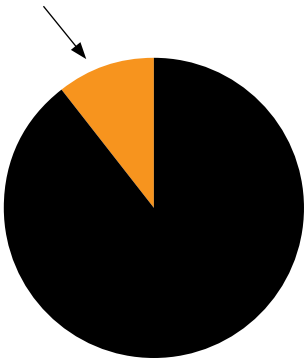
The Government backed New Zealand Insulation Fund provides owners of homes built before 2000 with up to $1,300 towards the cost of insulation. Studies have shown that insulation can save approximately 5% of the amount of metered energy used. 215,000 homes have been insulated with the Fund's assistance, and in 2013 $100 million more was allocated to extend the scheme.

$100 million to subsidise insulation is a lot of money, but the cost to taxpayers is much less than the proposed Labour/Green policy. The policy announcement indicated a target of reducing the household electricity cost by at least $230 a year; in aggregate about $460 million.

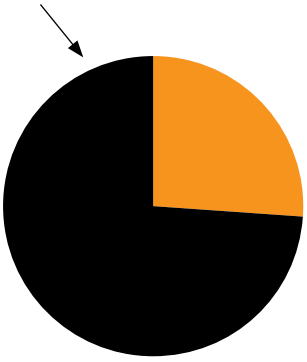
This would reduce GST by $60 million, income tax payable by generators by about $120 million and the Crown's dividend from its investment in power companies by about $160 million*. A total cost of about $340 million each year. Private owners of power companies would carry the remaining cost.

The political proposal suggests a minimum $230 per household electricity cost saving. Perhaps $170 of this would come directly from taxpayers with the remainder from private owners of generation.

Average household cost saving: 10%



Share of the saving paid for by taxpayers: 74%



* Before Meridian partial sale by the Crown

What Politicians and Regulators Want and Why (at least until now)?

Until the mid-1990s New Zealand's electricity industry was state owned and managed. There was the construction of power stations such as the Tongariro Scheme, Clyde, several of the Waikato stations, the Upper Waitaki, Marsden B and Huntly (to name a few) which came in years late, well over budget or both. There was environmental damage at Manapouri and elsewhere. There were cheap power deals with large factories processing alumina, iron sands and wood. And there was a crisis when rain didn't fill the hydro lakes in 1992.

Bad regulation resulted in many New Zealanders buying poorly built and insulated homes.

The failures and cost over-runs led to industry restructuring. The near-monopoly state generator was corporatised and separated into two, then four, companies. The grid was separated from generation into Transpower, and community owned distribution and retailing activities were transferred into companies. Some of the shares in these businesses were sold to private investors, although over half of the industry is still owned by the state or local communities.

The goals behind the restructuring, and the goals now of industry regulation are:

- Reliability (the lights stay on).
- Efficiency (costs are as low as possible).
- Equity (users pay what it costs the industry to supply them and only that).

"New Zealand owned", "government/community owned", "green/sustainable", "minimising energy poverty" and other social or environmental objectives can be pursued (or not) without compromising the three main goals.

Since the restructure of the electricity industry commenced in the 1990s, the three goals have been paramount. No-one would say nirvana had arrived, and a lot of the learnings have come "the hard way", but reversing the reforms would be a huge step backwards and a departure from the careful and considered approach followed to date.

Bad regulation has big costs. The global financial crisis resulted from bad regulation of the banking industry. Bad regulation of California's energy sector resulted in the Enron debacle and black outs. Bad regulation resulted in many New Zealanders buying poorly built and leaky homes.

Bad regulation of New Zealand's $40 billion electricity sector will ultimately mean higher costs and less reliability. The complexity of the industry and its importance are reasons why a series of Governments and Ministers have been careful when initiating change and have relied heavily on experts within the Ministry and agencies such as the Electricity Authority and the Commerce Commission.

The 2009 Government industry review is an example of a thorough and well researched piece of analysis. It noted "Using the LRMC benchmark, there is no clear evidence of the sustained or long term exercise of market power" or expressed in English; based on the long–term cost of new power stations wholesale electricity prices are fair. The 2006 review undertaken by the Labour Government arrived at similar conclusions and actually rejected much of what is now proposed in the Labour and Green policy.

Responding to the 2009 review National's Gerry Brownlee, the Minister since taking over from Labour's David Parker in 2008, instigated changes to make the market more transparent and to increase competition. These steps were consistent with the approach of previous Governments which have supported the overall direction of reform and the three key objectives (Labour, National, National/NZ First, Labour/Alliance/Progressive and National/United/Maori). Privatisation, which is about ownership not industry structure, has been the only really politically divisive issue.

Why Have Household Electricity Prices Risen?

Since 1990 the average price of household electricity has risen from 9.1 cent/kWh to 27.4 cents/kWh and the average annual cost from $725 to $2,195.

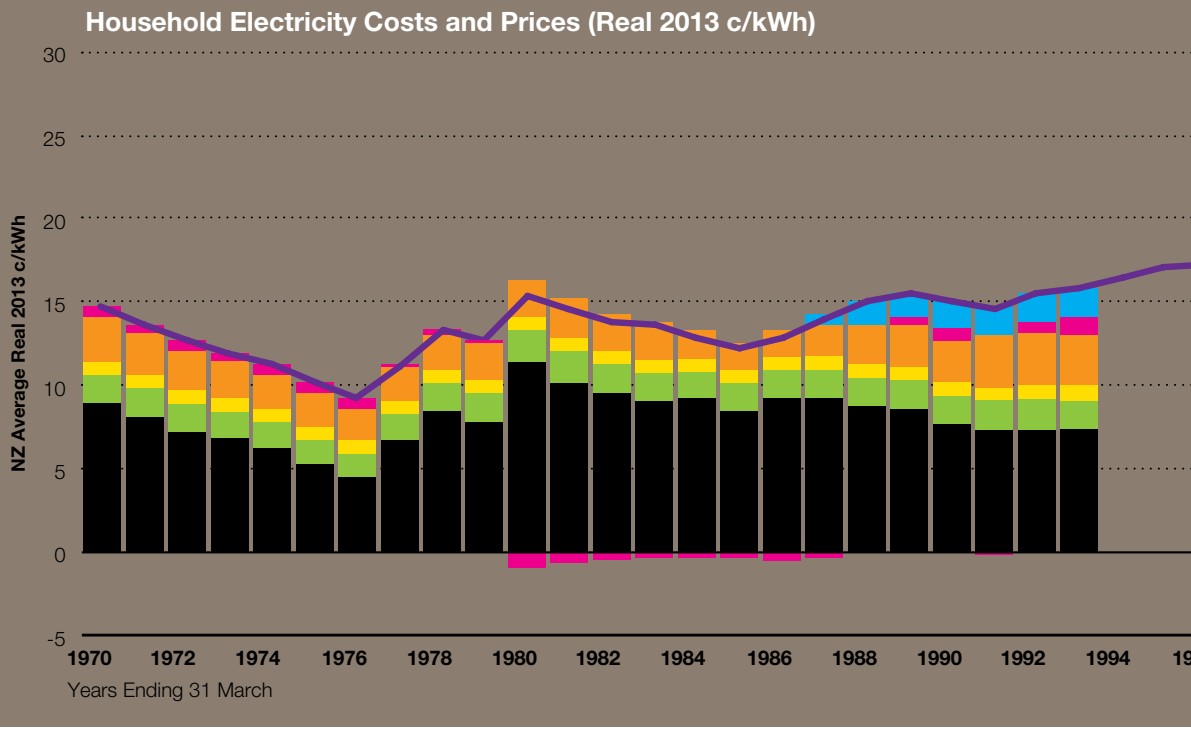
Of this uplift $635 reflects consumer price inflation and GST (GST is now $286 as against $77 in 1990). $595 is the higher real cost of line/grid/meter/back office ("cost to serve") charges. $240 comes from increased real wholesale electricity or generation costs.

The following graph sets out the costs behind the rise in household electricity prices. It shows the changes in real 2013 dollars, therefore the 9.1 cents/kWh 1990 price is inflated to 15 cents/kWh to be in 2013 dollars.

The period 2014-2016 is a projection of average household prices based on observed wholesale energy contract prices, expected grid charge increases, and with other costs kept stable.

While the bars in the graph shows the breakdown of the average household electricity cost, the purple line shows the observed average household price. At times it is apparent that costs have not fully explained prices. The graph shows a negative margin between costs and prices for a period from 1999. After the "Bradford Reforms" which forced lines companies to divest from retailing, it seems to have taken several years for the dislocation to settle down, and during that period, the generator-retailers lost money on retailing. Actual retail margins of individual retailers

The graph breaks down the real cost (expressed as cents per kWh) of providing electricity to an average household since 1970.



will differ from this derived margin. For instance the wholesale energy price used in this analysis is the retail contract price (explained in a later section of this Update), but a retailer may purchase electricity at spot prices, take the associated price risk and achieve a different margin, and not all retailers have the same back office costs ('known as cost to serve').

Sources of the Data and Assumptions

The data incorporated in the above graph came from Annual Statistics Electric Power Development and Operation, Electricity Division Annual Reports, Energy Hedge, ASX, MED datafile, MED Quarterly and Annual price surveys and Morrison & Co assumptions.

Before 1992 the lines cost is an estimated residual defined to be household prices excluding GST minus transmission, wholesale, service and meter costs. After 1999 the lines cost is the total lines charge net of transmission costs, excluding GST. Before 1992 the wholesale energy cost for households is based on the bulk supply tariff accounting for an estimated 50% to 60% household load factor and 6.5% distribution losses. After 1999 distribution losses are allowed at 6.5% with retail shape contributing to a 10% premium above base load wholesale prices. Before 1992 retailer costs of $90 per customer are allowed for cost to serve, $60 for meter and relay costs (in 2013 dollars) and a 4% margin to provide a return on working capital and retail assets. After 1999 the costs are increased to $150 and $65 per customer and the margin to 5%.

What Could be Done to Lower Household Electricity Prices?

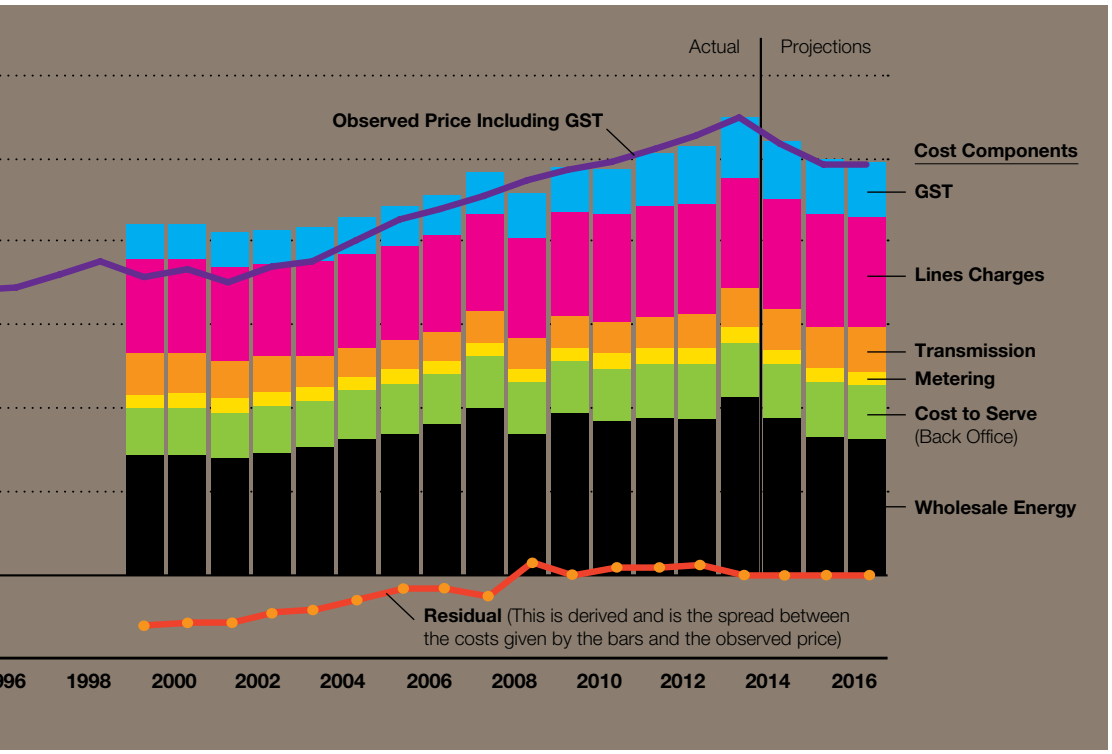
The price of the electricity sold to New Zealand households is a function of three distinct markets and a number of regulatory interventions. Anyone looking to lower prices needs to look at each to ascertain if it could be made more efficient:

Wholesale generation
As outlined in this Update, the market is competitive and there is no evidence of generators achieving excess returns. Consumers are expected to benefit from the lower real wholesale electricity prices projected for the rest of the decade (excepting in a very dry year).

Retail
According to the World Energy Retail Market Rankings Report 2012 New Zealand has the second to most competitive retail electricity market in the world.

As the technology improves, smart meters will lower costs by allowing greater use of off peak electricity. Retailer costs are also expected to fall and result in lower retail prices.

Grid and regional lines
The Commerce Commission sets line and grid charges and could always decide that line companies or Transpower were earning too much or had "gold-plated" their assets and shouldn't be able to charge for un-used capacity.



Regulation/extras
The Electricity Authority imposes a small cost-recovery levy.

Thus far New Zealand has avoided the expensive regulatory interventions which have pushed up costs in many markets, such as Australia.

Subsidies
Targeted subsidies are a relatively cheap way to assist people unable to otherwise insulate or heat their homes.

Since 1990 it is clear that the largest cost increase has been from line charges (ie local distribution). What has happened to line charges and wholesale energy costs is explained on the following pages

The Price of Line Charges for Households

Average real household line charges are up $460 per annum (5.8 cents/kWh) since 1990. Line companies are now paying tax and providing shareholders with a return. More importantly the balance of local distribution charges has been shifted. Businesses are no longer subsidising households.

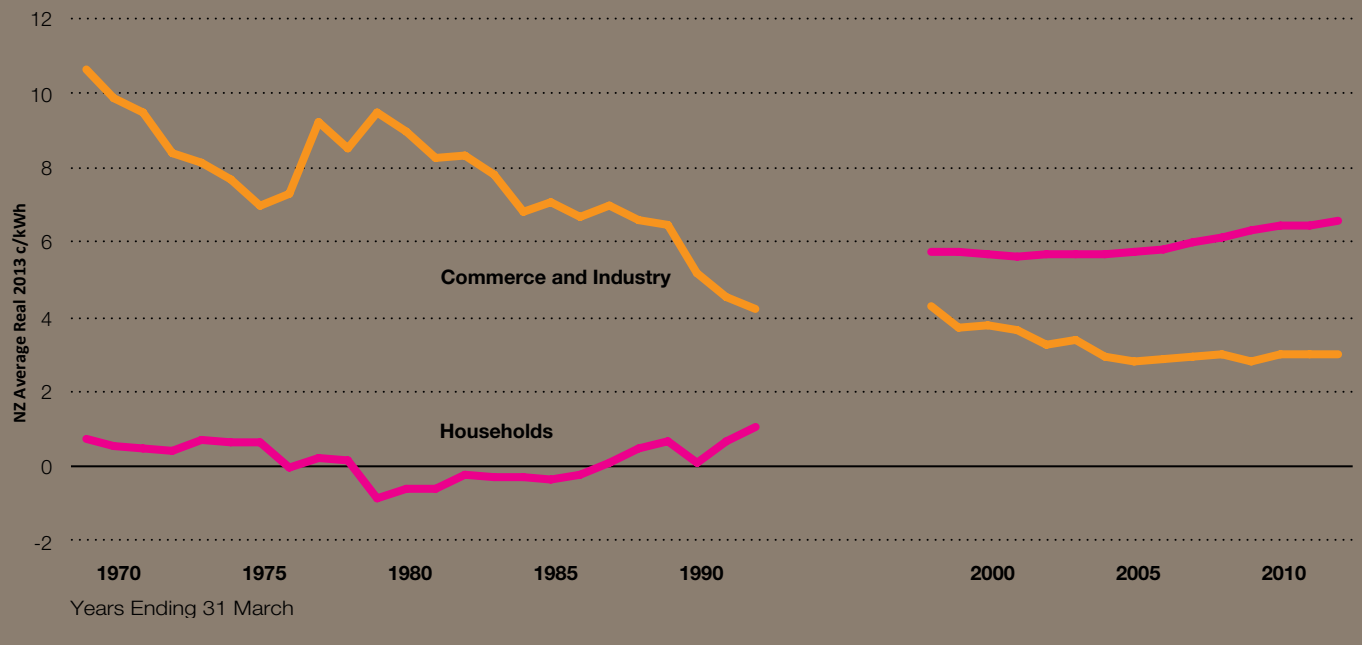
Since 1990 an average household electricity bill has risen $1,470 or in real terms by $835 a year or 114%. This has mainly come from higher local line charges, which are up $460 in real terms, excluding GST.

In 1990 a household would have purchased electricity from the Auckland Electricity Power Board or the Municipal Electricity Department of Wellington City Council or one of over 50 Power Boards or MEDs which retailed electricity and owned the lines which carried it from the national grid to households.

Households got cheap electricity because community owned and controlled distributors subsidised the cost for voters. They did so by recovering most of their costs through charges imposed on commercial users. As soon as the MEDs and Power Boards started to seek commercial returns and stopped over-charging businesses, household charges started rising.

The following graph shows real local line charges for household and commercial customers since 1970, excluding GST. It clearly shows the shift from business consumers subsidising households to the current cost–reflective user-pays approach. Several factors make it cheaper, per unit of power consumed, to distribute electricity to businesses than to households.

Household and Commercial Distribution Line Charges (Real 2013 c/kWh)



For an average household, it may feel unfair to now pay over $500 a year for something which previously cost about $30, but there are compensations. To use Vector as an example; the company which distributes electricity in Auckland paid $63 million in tax last year and $110 million in dividends to the Auckland Consumers Trust. In a very real way, Auckland households pay more for electricity so that Vector can pay tax and dividends. Wellington City received approximately $243 million when it sold its stake in Capital Power in 1995/6. For Wellingtonians the quid pro quo of higher line charges are lower property rates.

Charges for the missing period in 1990s are not shown on the graph because reliable data is not available.

The Price of Wholesale Energy for Households

Wholesale energy prices for households have risen 3 cents/kWh in real terms since 1990. An added real cost of $240 per year for a household with an average level of use.

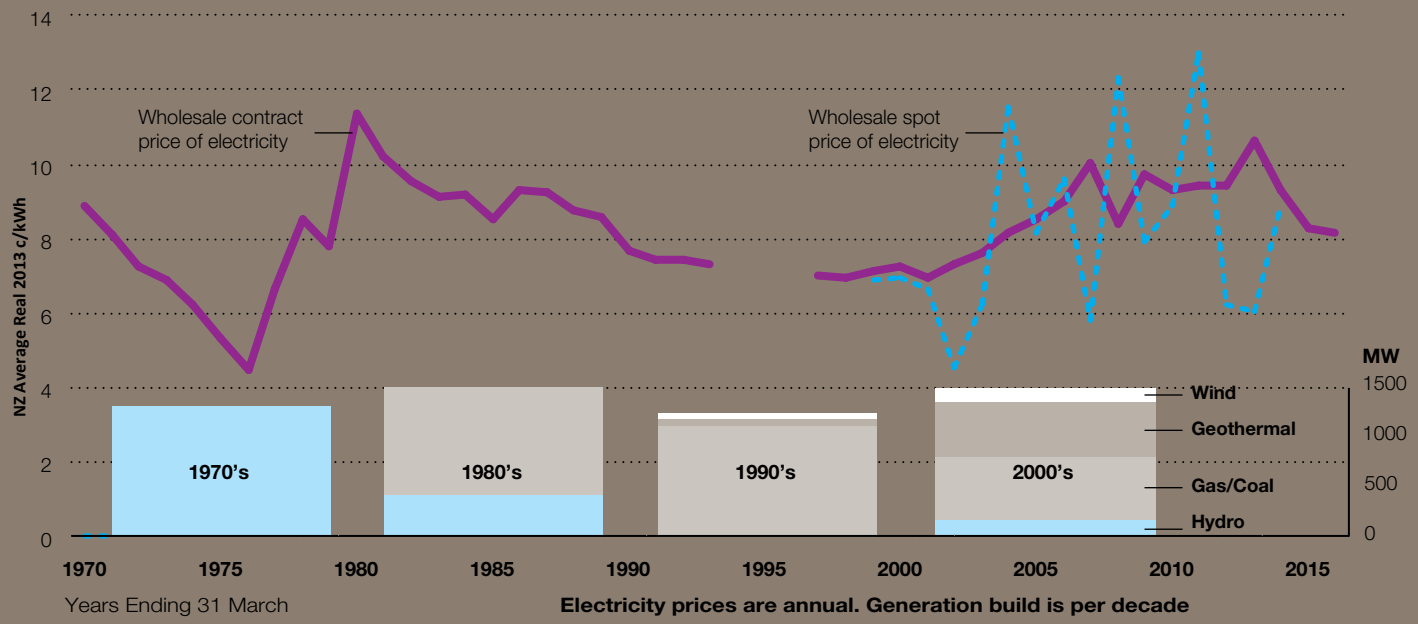
The graph shows the real wholesale contract price (in 2013 dollars) of electricity relevant to household consumers. Also graphed is the average annual wholesale "spot" price since 1999, which is much more volatile than the contract price as it reflects if the period was wet (lots of hydro) or dry (the need to use more expensive coal/gas fired generation). The contract price is less influenced by the weather and tends to reflect power station economics and the balance of supply and demand.

The bars on the graph show the amount of generation capacity built in each decade and the type of fuel.

The price line graph takes the "raw" wholesale price and makes two adjustments to derive the contracted wholesale price which is relevant to households.

For generators and most consumers, the price they receive or pay is usually fixed (by contract) at least for one year in advance (eg. the price charged households may rise, but usually only once a year).

Wholesale Electricity Cost for Households/New Generation Capacity by Fuel



The prices shown in the graph converts the average wholesale price to a price relevant for supplying households. Households tend to use more electricity in the mornings and evenings and more in winter than in summer. Over these high consumption periods the wholesale price is higher because of the need to use more expensive sources of generation. This means that the average household wholesale price will be slightly higher than just a simple average wholesale price. The contract price also includes a cost for the electricity which is lost between generation and delivery to the home consumer.

The graphed price line since 1997 is derived from Energy Hedge and ASX prices for the one and half year ahead period. Before 1993 the Bulk Supply Tariff is used. Data for the intervening period is unreliable so has not been graphed.

Forty Years of Wholesale Energy Prices and New Generation

The movements in real wholesale electricity prices shown in the graph were largely caused by the changing types of power stations built over the period (from hydro to coal to gas and latterly to renewable geothermal and wind) and the change from government monopoly to competitive supply. New Zealand's generation has become increasingly reliable and able to accommodate dry years, and in real terms wholesale electricity prices are no higher today than 35 years ago.

Pre 1980:	Until 1987 (when government's power operations were corporatised) the cost of generation was a function of the internal operations of the Electricity Department, political decisions about how the cost would be shared between taxpayers and consumers and the occasional crisis. Prior to 1975 the Department's costs were rising but were only passed on to consumers following a change of Government.
1980-1995:	Cheap gas from Maui became the fuel of choice for new power stations. From 1990 to 2000 90% of new capacity was gas powered. Power stations were built by private and state owned companies.
1995-2013:	Gas availability came into question and its price more than doubled. More of the new power stations came to be renewable - geothermal or wind. Construction was undertaken by a wide range of parties.

Wholesale Energy Prices Now & As Forecast For The Next Few Years

Abundant supply and flat demand are reflected in the future real price path for electricity which is about 2 cents/kWh lower than the average of the last five years. The lower wholesale prices would reduce the average monthly household bill by $10 to $15, if distribution and transmission costs stop rising.

Closure of the Tiwai Point smelter would probably reduce wholesale prices further for longer.

The outcome is however uncertain and could change in 2014 with a hot dry summer and low autumn rainfall. New Zealand's dependence on hydro generation means no–one can be totally sure about the following year. Over the last 20 years, the difference in hydro generation between wet and dry years has been approximately the equivalent of the annual consumption of 800,000 households. Covering "dry year" risk requires a lot of expensive back-up and a jump in prices when lake storage levels drop.

Is The Generation Market Efficient? (is there the right level of capacity* and are prices as low as possible?)

No market is perfect, but it is possible to say that over the last 20 years the electricity industry has delivered sufficient capacity to meet demand and has accommodated several changes in the most economic source of fuel. It has been subject to a great deal of well-informed scrutiny and no gaping holes have been identified.

But, as outlined in this Update, one test of market efficiency is the returns captured by generators. If there was evidence of excessive earnings it could indicate that the market was allowing generators to over-charge at consumers' expense. No such evidence exists.

* The ideal level of capacity is neither too much nor too little. Too much means idle plant and a high level of overhead cost. Too little means the threat of black outs and high prices.

Do New Zealand Households Pay a High Price For Electricity?

The following chart uses the International Energy Agency data of household electricity prices in a number of countries against which NZ prices can be compared.

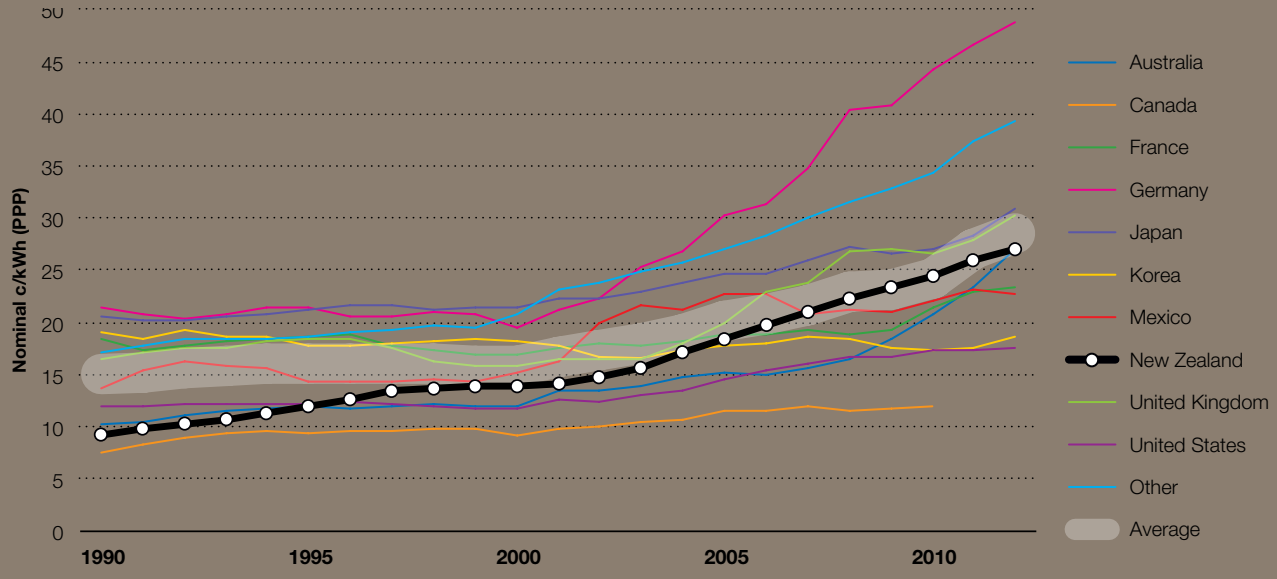
The local prices from each country have been adjusted to reflect the purchasing power parity of the relevant currencies. Removing the impact of short-term fluctuations in currencies is important. Otherwise if the NZ$ rises against, say, sterling it would seem that the price of electricity in the UK had fallen, but it would only have fallen in NZ$, not to British consumers paying in UK£. Using the purchasing power parity adjustment is the standard way to accommodate the effect of currency changes.

Since 1990 New Zealand household prices have risen more than most because they started well below average due to subsidised and distorted line charges. They are now slightly below average.

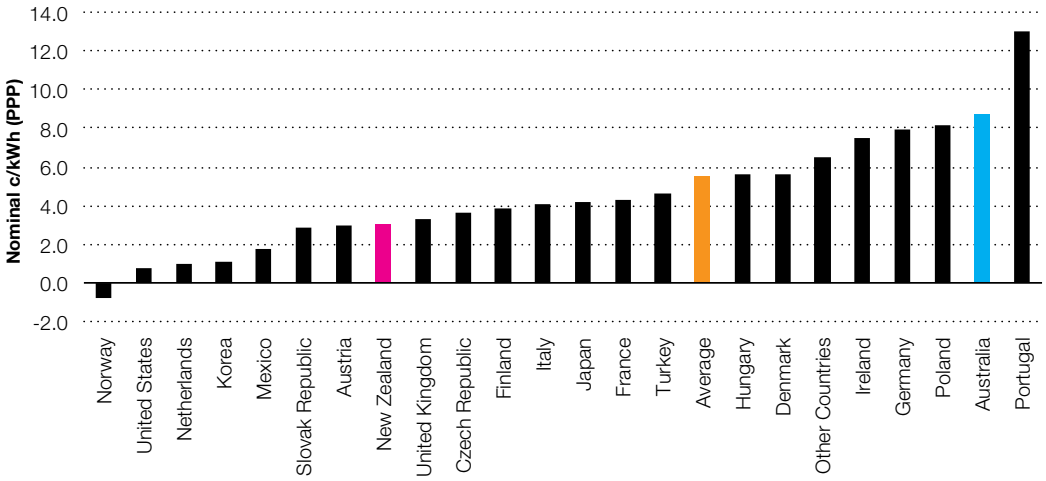
Looking at a more recent period, since 2009 the average world-wide household price rise has been slightly less than 6 cents/kWh while the New Zealand price rise was just over 3 cents/kWh.

The graph shows that New Zealand household prices are now at the lower end of the average international price band. In 1990 New Zealand prices were well below average, not because New Zealand generated cheap electricity, but because households were shielded from the real cost by big subsidies.

Household Price NZ Nominal c/kWh (PPP Exchange Rates)



Nominal Price increase 2009 to 2012 NZ c/kWh (PPP exchange rates)



The Labour/Green policy proposal erroneously indicated that New Zealand household electricity prices had increased much faster over this period than prices in other countries. The following table shows what has actually happened in five comparative markets and how the error occurred. In local currency terms NZ household prices are up about the same percent as those in Denmark, UK and Germany. Australia's are up more and the US by less.

If the prices in the other countries are just converted into NZ$ at the prevailing market exchange rates a different picture emerges because the NZ$ rose strongly over that period against most currencies except the A$.

Country	Electricity Price Local Currency			Actual Currency Rates		Electricity Price In Actual $NZ			Electricity Price in NZ$ PPP		
	2009	2012	%	2009	2012	2009	2012	%	2009	2012	%
New Zealand (cents)	23.5	27.1	**15%**			23.5	27.1	**15%**	23.5	27.1	**15%**
Australia (cents)	18.2	26.8	47%	0.801	0.782	22.7	34.3	51%	18.4	27.1	47%
Denmark (krona)	196	222	**13%**	3.40	4.70	57.2	47.2	**(18%)**	36.1	41.8	**16%**
Germany (euro)	0.228	.263	**15%**	.455	0.630	50.1	41.7	**(17%)**	40.8	48.7	**19%**
UK (pence)	12.2	13.9	**14%**	.405	0.511	30.1	27.2	**(10%)**	26.9	30.3	**13%**
USA (cents)	11.5	11.9	3%	0.634	0.811	18.1	14.7	(19%)	16.7	17.5	5%

These columns give the relevant household prices for electricity in the local currency (NZ$, A$, krona, etc.)

These columns show the same prices but converted into NZ$ at the market exchange rate which prevailed at that time.

The third set of columns has the relevant electricity prices converted into NZ$ at a purchasing power parity measure of the exchange rates.

A German householder experienced a **15%** electricity price rise in Euros, but a **17%** price decline if price is measured in NZ$ because of the 38% lift in the value of the NZ$ against the Euro.

Given that few Germans are paying their electricity bills with NZ$ it is misleading to not exclude the changing value of NZ$/Euro when attempting to compare NZ and German electricity prices.

Power Company Winners and Losers

A key feature of the political proposal is that hydro power stations would be paid a lower net price for the electricity they generate relative to what would be expected from selling into a market, or they could be obliged to pay a fee for using the water. Two justifications are put forward for this:

+ Old hydro power stations have long ago paid for themselves. Selling electricity at today's prices is producing a financial windfall for the power station owners.
+ Hydro power stations get free use of water, yet water is a public resource so private users should have to pay a "resource rental" if they use it.

The proposal to pay a low price for hydro power was based on the theory that asset revaluations shown in the statutory accounts of New Zealand's power generators reflect "windfall" profits and should be captured back by forcing the companies to sell electricity at a low price. The revaluations shown in the following table are from a report compiled by Dr Geoff Bertram for the Institute for Governance and Policy Studies, Victoria University of Wellington.

Company	Revaluations	Revaluations Per Share
Contact	$2,007 million	$2.74
Genesis	$878 million	
Meridian	$4,412 million	
Mighty River	$2,839 million	$2.03
TrustPower	$1,291 million	$4.11

There are several reasons why the calculations, analysis, and conclusions, are flawed. Implicit in the "windfall at consumers' expense" theory is that rising electricity prices were not anticipated and that somehow the revaluation actually caused rising electricity prices. Both assertions are nonsense. There are other reasons for disregarding the claims.

1. Most durable assets change in value over time. Houses being an obvious example. Why suggest confiscating the value uplift of one type of asset (power stations) rather than another (houses)? Extending the analogy, if the approach advocated for setting electricity prices was applied to houses, rents would bear no relationship to the quality of the house. The rent for an old house would be less than the rent for a new one, even if the old one was a mansion and the new one a bungalow.
2. The value of long-life assets such as power stations is sensitive to two variables. One is projected net income (a function of price, volume and costs). The other is the discount rate. Over the last decade long-term interest rates have ranged between 7.5% per annum and 3.4% per annum. An income stream valued at 3.4% per annum is more than double the value of the same income stream discounted at 7.5% per annum. A part of revaluation gains reflects lower discount rates and has nothing to do with higher net income.
3. The return on any asset can only be judged from looking at both its net earnings and revaluation gains/loss. Looking at just revaluations will provide an incomplete picture. A share with a price of $1.00 and a 1 cent dividend has a cash yield of 1% per annum. If the share rises in value to $1.09 the revaluation will be 9% per annum. and the total return 10% per annum. To judge if the share has been a satisfactory investment, it is necessary to look at both cash and revaluation returns. Clearly an investor buying the share for $1.00 would have been anticipating price appreciation as compensation for the low dividend yield, so defining the revaluation as "windfall" and expropriating it would be highly unfair.

Far from TrustPower capturing a windfall, Cobb's earnings over the period since acquisition have been only satisfactory and projected earnings from today will probably be a little lower than TrustPower was anticipating at the time of acquisition.

The same is true with a hydro power station. Revaluations explain only part of whether returns on the investment have been good, adequate or poor. They explain nothing about whether they were built-in to an investor's expectations at the time of acquisition.

TrustPower

TrustPower's accounts as at 31 March 2013 show $862 million of revaluations mainly relating to hydro generation (TrustPower also has revaluations of its New Zealand and Australian wind farms). But this is not evidence of windfall gains captured at the expense of electricity consumers.

The Cobb power station is a useful example as it was acquired by TrustPower in 2003 for $93 million and its returns can be tracked.

Cobb was purchased from Australian Gas Light's subsidiary NGC. NGC had acquired the station when it purchased TransAlta. TransAlta had purchased the station in 1999 from Meridian for $84 million after Meridian had been vested with the station when the Electricity Corporation was broken up. Cobb was originally commissioned in 1956 for the Electricity Department having been built by the Public Works Department.

Based on the station's average output of approximately 180GWh a year and wholesale energy prices subsequent to its purchase it is possible to estimate its annual net after tax income contribution, before financing costs. This indicates that TrustPower's cash returns on the $93 million invested, over the period 2004 to 2016 are likely to have averaged about 8% per annum, a little less than 6% per annum in real terms.

As for revaluation gains, it is possible to look back at electricity price forecasts from 2003 to see if they would have underestimated what has actually occurred. This shows that the current level of real wholesale electricity prices is slightly below those anticipated a decade ago when the Cobb station was acquired.

What TrustPower purchased in 2003 is also relevant. The $93 million purchased both the station buildings, plant and equipment and the access to the natural Lake Cobb. Without the access the station is worth zero and TrustPower has definitely paid for it.

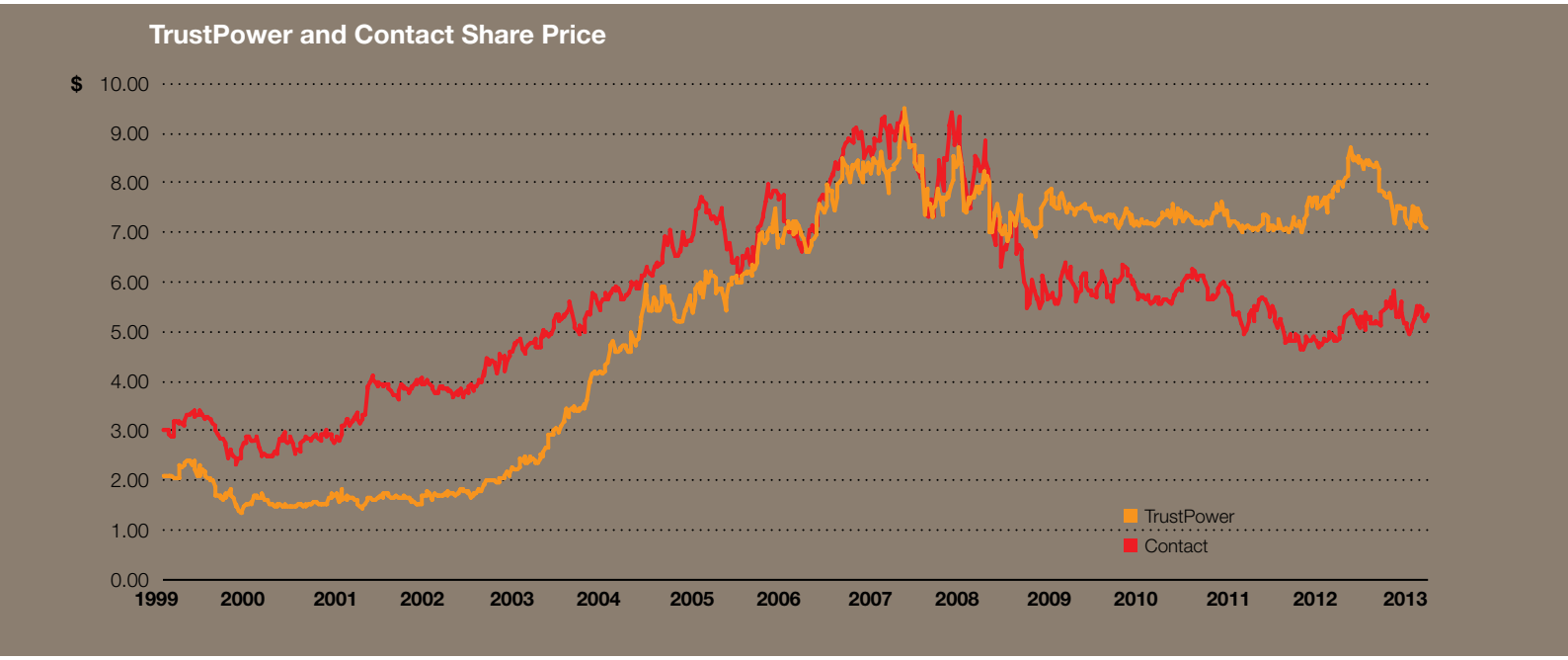
A Better Test

Anyone claiming that power companies are capturing excessive returns can look at statutory accounts or the net income associated with individual power stations, but a more transparent test comes from share market performance, if the companies are listed.

Investment analysts and share markets have little interest in accounting measures of revaluations and what the share market record shows is actual returns to shareholders. In the case of TrustPower and Contact, the average return since 1999 has been 10.3% per annum or in real terms 7.8% per annum. The return includes dividends and share price changes and is weighted to reflect Contact's larger size.

10.3% per annum (or 7.8% per annum real) is OK as far as returns go, but is hardly excessive.

The market return over the same period was 7.5% per annum which most investors regard as poor compensation for the risks involved.



Someone who acquired Contact shares in May 1999 will have received a 8.8% per annum return (from dividends and share value changes) over the last 14 years . Someone who acquired TrustPower shares on the same date will have earned 13.2% per annum. The average return of 10.3% per annum is derived by weighting the returns to reflect the larger size of Contact.

TrustPower's share price today is the same as it was seven years ago. Contact's share price is the same as it was nine years ago. There is no evidence the market sees either company capturing windfall profits. All of Contact's activities are in New Zealand. TrustPower has a highly profitable, and growing, wind generation base in Australia.

In Conclusion

The proposal to lower household electricity prices by paying hydro power stations a lower price for their generation output is, in large part, based on the theory that the owners of hydro power stations are over-earning when the output is sold at market prices.

There is no evidence that is the case. Nor is there any logic to the concept that they get water for 'free' and should now pay up.

The two listed power companies have provided a positive but not excessive return over the last 14 years. Neither company has provided a satisfactory return over at least the last seven years.

A review of the estimated cash returns provided by an individual power station such as Cobb also show nothing more than a satisfactory yield on the funds invested. That electricity prices would rise over time was anticipated in 2003, and the fact that they have risen has not therefore resulted in unexpected or windfall revaluation gains. In fact the valuation of Cobb back in 2003 will have anticipated that electricity prices would now be slightly higher than they actually now are.

Central Buyer

Today in New Zealand there is competition to build the next power station and there is competition amongst generators to sell electricity into the market. Competition imposes a compelling discipline on generators to build and operate power stations as efficiently as possible.

There are a number of reasons why a market is more efficient than a Central Buyer charged with acquiring all the nation's electricity, effectively operating all its power stations, and deciding on which station would be built next. Many are set out in the 2006 Cabinet Paper which was the culmination of a government review of this topic. The key conclusions of the Cabinet paper are copied below.

- A single buyer essentially involves central planning of investment for the entire industry. This is likely to result in somewhat higher levels of security, because this would be the primary focus of the single buyer, but the advantage over the current arrangements is not large as projections for new investment suggest the market is performing satisfactorily (albeit after government intervention to underwrite e3p). However, in terms of perceptions, the margin is likely to be greater, as an observable "plan" for the industry would be available. The central planner could still not "guarantee" absolute security due to real world uncertainties such as gas availability, adverse weather conditions, and breakdowns.
- It is not expected that the single buyer would achieve more efficient management of dry years. The single buyer would allow all information to be processed by a single decision-maker allowing a certain consistency of approach. Placing control of all supply-side decisions under a single party, however, magnifies the consequences of any misjudgement or error (as in 1992). Errors may be harder to avoid as the process is likely to be less transparent and contestable.
- The efficiency or cost-effectiveness of the timing of investment in generation would likely be lower under a single buyer. Some over-investment would be likely due to the asymmetry of risk/reward: the single buyer would face strong incentives to avoid any security failure, as this is very visible, while incurring unnecessary costs would be almost impossible to detect. The single buyer is also likely to be less innovative and more conservative in its investment decisions.
- Generation and transmission coordination under the single buyer would be improved as direct coordination is provided for.
- The single buyer would be relatively poor at sustaining pressure on operational costs. While generation owners in the regulated market have strong market incentives to minimise costs, the single buyer would be cost plus (as single buyer/seller, it can pass on the cost of poor investments). The single buyer would also face information constraints and it is unlikely that its long-term contracts with generators could cover all possible future issues.
- It is anticipated that the single buyer would increase the availability of contracts for buyers on reasonable prices and terms. This in turn could facilitate retail entry by new players and allow existing companies to expand coverage. This would have a positive impact on retail costs and innovation.
- It is not anticipated that the models would display different levels of performance for the remaining criteria, namely, least cost dispatch, energy efficiency and demand-side management, and efficient wholesale prices.

It is easy to see why Cabinet chose to not introduce a Central Buyer in 2006. The only real benefit identified is that it could stimulate more retail competition. Other means have been found to deliver that and New Zealand now has the world's second to most competitive electricity retail market. Otherwise the report notes that new investment in power stations and their operation would be less efficient. The cost of generating electricity would be higher. "Errors may be harder to avoid as the process is likely to be less transparent and contestable" and "Placing control of all supply-side decisions under a single party… magnifies the consequences of any … error".

Other factors include:

- A key point (not noted in the Cabinet Paper) is the difficulty of arriving at a fair/correct price for the electricity purchased. The Labour/Green policy suggests fixing a price to provide a "fair" return on the value of each station. The unfairness of discriminating against the value of hydro power stations is noted in the prior section of this Update. But it would not only be hydro power that would be difficult to price effectively and fairly.
- TrustPower's South Australian Snowtown II wind farm is under construction at present at a cost of NZ$560,000 per GWh of projected output. In 2009 Meridian built its Makara wind farm at a cost of $720,000 per GWh of projected output. Were both wind farms generating in New Zealand today they would both receive the same price from selling their electricity into the market. However, if a Central Buyer were established and it purchased the output from both wind farms it would presumably provide each with a unique price to provide a fair return on their respective cost.
- The wind farm example illustrates a drawback of the Central Buyer; it takes all the risk. Let's say Meridian had built a wind farm for $720,000/GWh and entered into a long term contract to sell the output to the Buyer at a price to provide a fair return on the investment cost. Then let's say that a few years later TrustPower built a wind farm for $560,000/GWh and sold that output to the Buyer at a price to provide a fair return on that investment. The Central Buyer, not the wind farm owner would carry the cost of the first wind farm being relatively expensive.
- Today real wholesale electricity prices are forecast to be lower over the next five years than they were for the last five, and they are likely to decline further if the Tiwai Smelter closes. That is the market working and it is tough news for investors in power stations. Had a Central Buyer existed prices would have been fixed by long term contracts. Good news for power station owners and bad news for the Central Buyer or consumers who would pay more for electricity than is likely to be the case with a market.
- Since 2000 approximately $4 billion has been invested in 22 power station development projects in New Zealand. They are fuelled by gas, biomass, wind, water and geothermal. They are located all around the country. Today they all sell their electricity into the market and receive the market price, either spot or contract. With the Central Buyer each power station would have a unique contract price. Going forward the Central Buyer would decide where the next power station was to be built, by whom and by what it would be fuelled.
- TrustPower has invested in the development of several generation projects and it has consents to build a number of wind and hydro power stations. It has also undertaken engineering and commercial analysis of upgrades to its existing power stations and has a track record of small incremental improvements, both in physical plant and how it operates its stations.

  It is very hard to see why TrustPower would continue to invest in the development of either options or upgrades. It would just make submissions to the Central Buyer's requests for proposals.

  In theory the offers to build the next power station would be highly competitive. In practice large civil works procurements in New Zealand do not attract many bidders.

Last Words

It has been proposed that New Zealand's wholesale electricity market be replaced with a Central Buyer. The Buyer would pay hydro power stations a lower price for their output than would have been expected from the market and would transfer the cost saving to households and possibly other consumers.

The case for the change is based on errors of understanding as to what has caused household electricity prices to rise and a review of the statutory accounts of New Zealand power companies which shows that hydro power stations have been revalued. It is claimed that these revaluation gains have come at the expense of retail consumers. In fact:

+ There is no evidence that the owners of hydro power stations have captured windfall profits.

  For at least the last seven years investors in listed New Zealand power companies have done poorly and over the last 14 years (since the Bradford Reforms) returns have been only satisfactory.

+ New Zealand has an efficient wholesale market. Over the last decade investment in new generation has run ahead of demand and real prices are now projected to be lower for the next five years than for the last five.

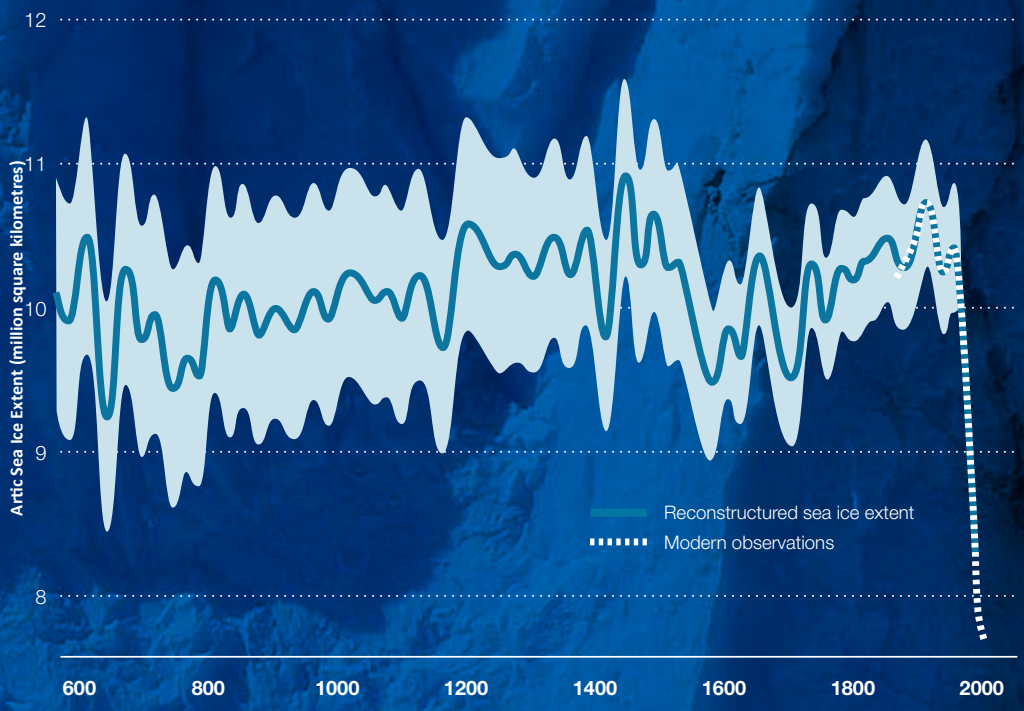
+ New Zealand household electricity prices are now at the lower end of international averages. However the price is substantially higher than 20 years ago, on absolute and relative measures. Much of the change is due to the removal of subsidies. 20 years ago community owned Power Boards and Municipal Electricity Departments did not provide a return to owners or pay tax and they subsidised households by overcharging businesses.

+ Over recent years New Zealand real household electricity prices have risen due to increasing distribution charges, not because of higher wholesale electricity prices. Household electricity price rises have been modest when compared to those in Australia and not exceptional when compared with those in Europe.

+ A Central Buyer would be highly disruptive and would almost certainly increase the cost of generation. A water levy would impose a similar penalty on hydro generators without the industry distortion, but is likely to be unfair on existing users.

+ A forced reduction of what is paid by households and to some generators would mainly be a cost on government (via lower tax and dividends). There are more effective means of reducing household poverty and ameliorating damp and cold houses.

Artic Sea Ice Extent over the Last 1,450 Years



- Glacier melt is one of the most visible effects of climate change. While the ice volume in New Zealand's glaciers have "only" declined 15% since 1985, the Southern Alp snow line is expected to move up by between 120 and 270 meters over the next 70 years.
- Snow cover in the Northern Hemisphere is now 10 million square kilometres less than it was in 1967, Arctic sea ice is decreasing by 12% per decade and before the end of the century the Artic is expected to be ice-free in summer.
- Sea levels have risen 17 centimetres since 1900 and New Zealand local government is now being advised to plan for at least a further half metre increase.
- Carbon levels in the atmosphere have increased from 280ppm in 1800 to 400ppm now. The average atmospheric temperature is up 0.8 degrees over the same period. At the current rate of emissions the atmospheric temperature is expected to rise by at least a further 2.6 degrees by the middle of the century.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