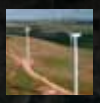
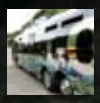
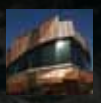
Energy  Fuel Distribution  Public Transport  Airports 

Infratil update

March 2011, Issue No. 33

Lake Coleridge

TrustPower's Coleridge Power Station

Infratil's largest investment is its 50.6% holding of TrustPower. It has a market value of nearly $1.2 billion (almost $2 per Infratil share). Infratil has received cash dividends of $385 million from TrustPower since 1994. The shareholding cost $391 million and was purchased over the period 1994 to 2005.

TrustPower owns 21 New Zealand electricity generation schemes with 430MW of hydro and 200MW of wind capacity, and a 100MW wind farm in South Australia. The hydropower schemes are spread around New Zealand providing diversification against regional weather patterns and a base for significant future expansion. TrustPower also has a strong electricity retail business with 220,000 customers in mainly regional areas.

Infratil invests in businesses where it has expertise, can exert control or strong influence and where sector change and growth has the potential to deliver growing returns. TrustPower is a perfect fit with these criteria.

Over the last 20 years the New Zealand electricity sector has undergone profound restructuring and change. It has transitioned from being almost 100% state owned with political decision makers, to now having some private ownership and prices and investment decisions mainly determined in a market that reflects real supply and demand. It has also transitioned from anticipating that electricity would be increasingly generated by large coal/gas plants, to now expecting that future electricity needs will largely come from renewable sources.

Two key drivers of TrustPower's profitability, over the last 17 years and into the future, are New Zealand electricity prices and the Company's ability to find good expansion investment opportunities.

This Update explains why New Zealand electricity prices have risen over the last decade and where they are likely to go over the next decade. It also reviews TrustPower's investment plans, including in the area of irrigation.

TrustPower: Performance & Relative Performance

In 1994 when Infratil acquired its initial stake in TrustPower, the company had 85,000 customers, generated sufficient electricity for about 20,000 households and produced earnings of $21 million.

In 2010 TrustPower generated 15 times more electricity, had 220,000 customers and earnings of $274 million; 1,200% higher than 1994.

Since 2000, which is the period subsequent to the major restructuring of the electricity industry, TrustPower's performance still stands out.

NZ ELECTRICITY INDUSTRY: PROFITABILITY & GENERATION SINCE 2000

The following table shows TrustPower's earnings and NZ generation over the last eleven years. It gives the same data for the other four major generators.

	EBITDAF (NZ$m)						GWh (NZ Generation Only)						EBITDAF/ MWh
	TPW	CEN	MER	MRP	GEN	Total	TPW	CEN	MER	MRP	GEN	Total	(NZ$)
2010	274	427	642	328	249	1,919	2,017	9,691	13,862	5,812	7,576	38,958	49.26
2009	261	445	512	447	202	1,869	2,126	9,948	12,237	6,129	8,046	38,486	48.55
2008	208	567	371	305	344	1,795	2,018	11,035	11,908	5,954	9,126	40,041	44.83
2007	196	544	476	315	183	1,716	1,941	11,020	12,678	5,804	7,992	39,435	43.50
2006	186	557	448	304	221	1,716	1,791	11,534	11,256	6,010	8,183	38,774	44.26
2005	173	491	518	298	178	1,659	2,071	10,627	13,364	5,586	7,615	39,263	42.26
2004	140	453	418	256	185	1,451	1,738	10,143	13,108	5,355	7,131	37,475	38.72
2003	112	359	299	175	160	1,104	1,672	10,049	12,691	4,952	6,368	35,732	30.91
2002	38	293	231	140	115	818	1,522	8,523	11,112	3,494	6,948	31,599	26.90
2001	66	341	263	156	127	953	1,613	8,660	12,405	4,006	5,748	32,432	29.40
2000	69	247	212	128	114	770	1,498	8,450	11,974	3,777	5,379	31,078	24.78

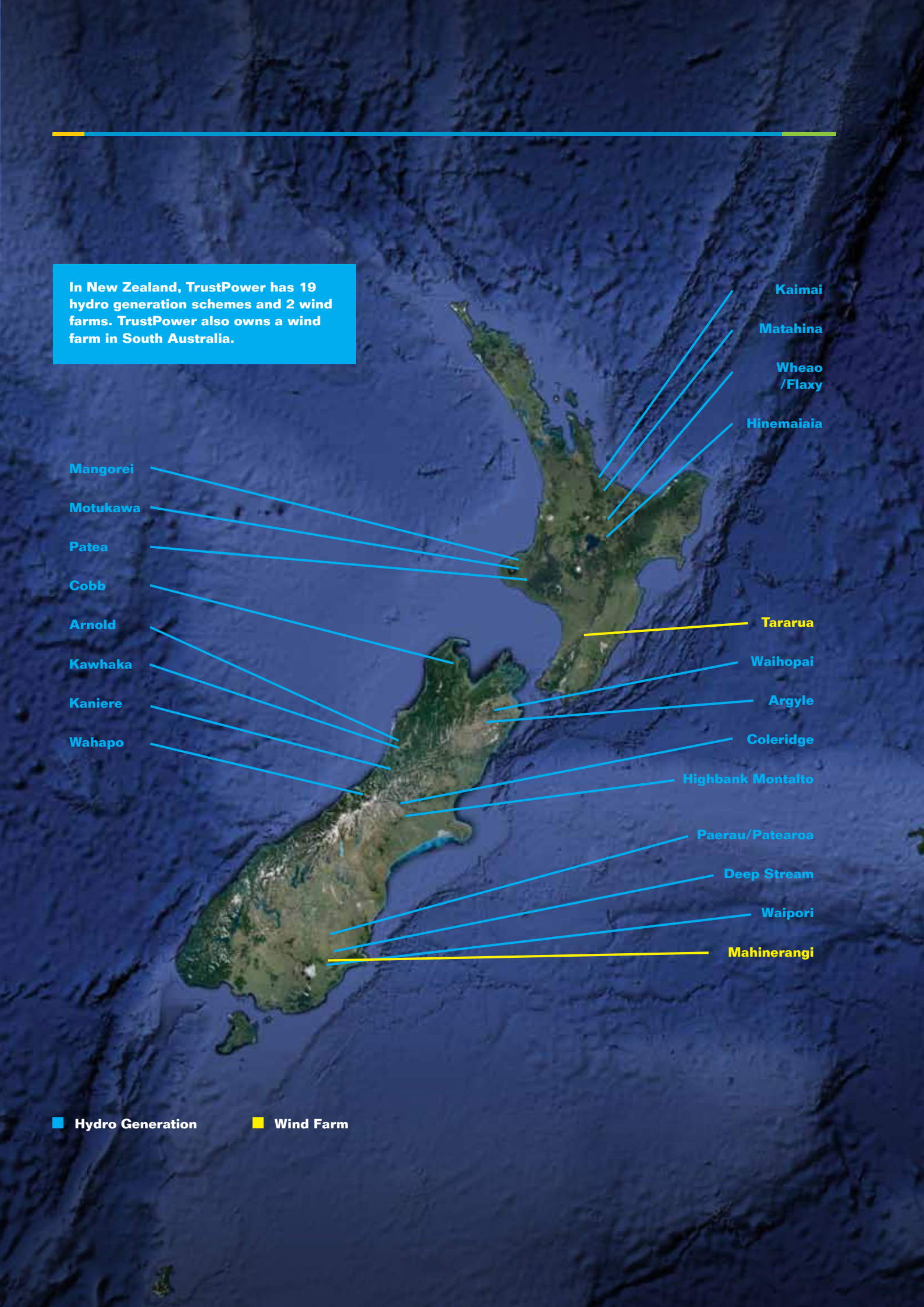
TPW: TrustPower **MER:** Meridian Energy **GEN:** Genesis Energy **CEN:** Contact Energy **MRP:** Mighty River Power

TrustPower has done better than the rest of the industry at growing earnings, at expanding generation and on the measure of earnings per unit of generation output

11 year record	Earnings Growth	Generation Growth	Earnings per unit of Generation
Industry	149%	25%	99%
TrustPower	**297%**	**35%**	**195%**
Contact	73%	15%	51%
Meridian	203%	16%	162%

In part this reflects excellent management and direction at TrustPower, in part it reflects the particular circumstances of each of the companies. For instance some of Contact's generation is gas-fired and higher gas costs will have eroded Contact's earnings.

The two most important factors behind TrustPower's rising earnings over the decade were rising electricity prices and a series of good development projects which increased production and hence earnings from the higher electricity prices.


In New Zealand, TrustPower has 19 hydro generation schemes and 2 wind farms. TrustPower also owns a wind farm in South Australia.
Kaimai
Matahina
Wheao /Flaxy
Hinemaiaia
Mangorei
Motukawa
Patea
Cobb
Arnold
Kawhaka
Kaniere
Wahapo
Tararua
Waihopai
Argyle
Coleridge
Highbank Montalto
Paerau/Patearoa
Deep Stream
Waipori
Mahinerangi
Hydro Generation
Wind Farm

TrustPower: New Zealand Generation Projects

TrustPower has consents for new generation projects which if all installed would provide sufficient electricity for approximately 250,000 households at a cost of about $1.5 billion. They represent two to three years of normal National load growth.

Whether these projects progress depends on whether future electricity prices are expected to provide sufficient income to justify the capital investment. An advantage of having a significant number of projects is that it allows their relative merits to be compared so the best ones progress soonest.

The $75 million Stage One of the Mahinerangi wind farm, which is almost completed, was undertaken because it had several specific features which improved the return on the funds being invested. It is adjacent to TrustPower's Waipori and Deep Stream hydro stations so has back up when the wind is not blowing and it can use existing transmission equipment which reduces costs.

Also, because its output will be entirely consumed in Dunedin, there is no requirement to pay national grid charges.

The other projects TrustPower is either working on or likely to start work on in the very near term are relatively small scale or incremental to existing generation. The more material generation schemes for which TrustPower holds consents are listed in the following table. Notably those planned for the Arnold and Wairau rivers are the only large hydro generation projects consented in New Zealand since introduction of the Resource Management Act in 1991 (over the last twenty years the largest new hydro power station built in New Zealand was TrustPower's 6MW Deep Stream, commissioned in 2008. The largest hydro generation project was Meridian's upgrade to Manapouri).

Investigation and consenting for the proposed Arnold Hydroelectric Power Scheme near Westport took 13 years. It is based on an existing TrustPower power station which will be dismantled if the new construction occurs. The project economics benefit from the excellent flow of the Arnold River and the West Coast's high grid costs. If it progresses construction is likely to take about two years and cost about $200 million.

TRUSTPOWER'S CONSENTED NEW ZEALAND GENERATION PROJECTS

Location	Size	Approximate Cost*	Consents
Arnold West Coast hydro	40MW - 180GWh (22,000 households)	$190-210 million	Consented for construction to commence before 2020
Wairau Marlborough hydro	73MW -370GWh (47,000 households)	$280-320 million	Consented for construction to commence before 2020
Kaiwera Southland wind	200MW - 650GWh (80,000 households)	$400-500 million	Consented for construction to commence before 2019
Mahinerangi Otago wind Stage One	36MW - 105GWh (13,000 households)	$75 million	Consented and under construction for completion May 2011
Mahinerangi Otago wind Stage Two	164MW - 530GWh (66,000 households)	$350-375 million	Consented for construction to commence before 2019

* Cost estimates are undertaken during consenting with final figures (such as those given for Mahinerangi Stage One) only prepared during detailed final stage civil design and geotechnical analysis.

An important contributor to TrustPower's ability to secure these development options is its large number of geographically dispersed medium scale hydro power stations. TrustPower's existing station and consents on the Arnold River made it the only party with the information and property rights that could undertake the proposed upgrade.

Australia

Over the last decade TrustPower has been developing wind generation in Australia with one large, 100MW A$200 million, wind farm built near Adelaide and a second in the final stages of commercial assessment. While these projects are significant this Update has focused on TrustPower's New Zealand generation and developments.

Waipori hydro lake and dam

New Zealand's Electricity Industry: Organisation & Regulation

For investors in TrustPower the structure and regulation of the electricity market matters. It is easier to forecast (and respond to) economic, resource or technology changes than changes in political inclination. The value of very long-life assets such as power stations are sensitive to non-commercial competition or regulatory expropriation.

While the 20 year evolution of the New Zealand electricity market is ongoing, the industry's structure, regulation and trends are positive for investors.

New Zealand's first experience of municipal electricity generation and use was private. Within a decade of Thomas Edison's 1879 unveiling of the incandescent light bulb, Reefton on the West Coast was lit with electricity generated by a privately owned hydro power station on the Inangahua River. But in the 1920s the Government solved the dilemma of how to fund large-scale generation and transmission by granting itself monopoly rights to these activities and local authorities (or boards) monopoly rights to locally distribute electricity.

From the 1920s onward politicians decided which power stations would be built and the price consumers would pay. Prices were set to cover operating, but not capital costs. Unsurprisingly a 1985 report by The Treasury noted that New Zealand had neither cheap nor reliable electricity and the sector was heavily subsidised by central and local government. It set off fifteen years of industry reform.

The Electricity Corporation of New Zealand was established in 1987 and a year later the national grid was transferred into Transpower. In 1993 wholesale electricity prices and grid charges ceased to be bundled and in 1994 Transpower moved out of ECNZ to become a standalone SOE.

In 1996 a wholesale market for electricity was established and approximately 25 per cent of ECNZ's generation assets were hived-off to form Contact. In 1999 Contact was privatised and ECNZ was broken into three; Meridian, Mighty River and Genesis.

A parallel restructuring of the regional distribution businesses also occurred. The Electric Power Boards and Municipal Electricity Departments were corporatised in 1993 and the restrictions on their activities and geographic monopolies were removed. In 1999 the Electricity Industry Reform Act forced ownership separation of distribution (lines) from either generation or retailing, sparking a reshuffle of assets as owners decided which side to stick with.

Over the decade following 2000 privatisation has ceased and there has been a moderate swing back towards regulation. Energy distribution companies have had prices fixed. Government took responsibility for "dry year" reserves and built back-up generation (gas and diesel fired), and then changed its mind and sold out.

More permanently, Government encouraged Transpower to significantly upgrade the grid.

As matters stand now:

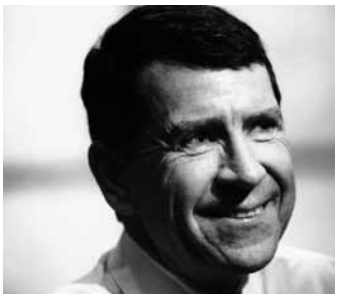
- Lines companies are price and rate of return regulated, albeit with on-going dispute as to the exact prices/returns.
- Transpower's grid upgrade is underway, which is important for the future shape of the industry. A meagre grid forces the construction of gas/coal fired generation close to cities where the electricity is wanted. A substantial grid makes it viable to have wind/hydro/geothermal generation because the wind/water/steam is location specific and the energy can only be transported as electricity.
- The Electricity Authority has replaced the Electricity Commission, with a broad mandate to oversee the efficiency of the market.
- The National Government has indicated that if re-elected it may sell some shares in some of the three energy SOEs; Meridian, Mighty River and Genesis.
- Separate to the electricity industry regulatory/ownership changes, generation entered the Emissions Trading Scheme on 1 July 2010, which means that generators emitting greenhouse gases must have emission rights (initially 1 right for each 2 tonnes of CO_2 emitted with a capped price of $25 per 1 tonne right).

Investors in the electricity industry own assets with limited portability and the expectation of returns accruing over a long term. Consequently Government policy is watched very carefully in case it distorts prices. At present the regulatory environment is "pro-market" and returns in the New Zealand electricity sector should mainly reflect real supply and demand factors interacting in a reasonably effective and efficient market.


Coleridge Power Station

Interview. Dr Bruce Harker

Head of Infratil's energy group and chairman of TrustPower.



What is the role of Infratil at TrustPower?

We hope we appoint good chief executives, because they build the culture within the business, they sort out the competency of the management team and build it over time. And that lets us be focused on the risk-management aspects, the capital aspects and the strategy aspects.

What is the upside at TrustPower?

Do our energy sector investments mature so they just chug along spitting out its cash? Maybe, but it is still a long way off. We see a lot of optionality, whether it is irrigation using Coleridge or whether it is wind.

In New Zealand we have not fully embraced carbon pricing, that will contribute a little bit of value improvement for hydros and wind.

What affect would partial privatisation of the energy SOEs have on TrustPower?

It will take 20% privatisation of the SOEs to get the industry to a fully stabilised position. We still have very low returns and quite low return expectations from quite risky projects going on in the SOEs and it needs the capital market pressures to help that along. When it comes to security of supply it has really been the lack of risk management in the SOEs that has put the country at risk on several occasions in the last decade. That can still go wrong at listed companies, but I think the commercial pressures on a board to monitor and recognise risk improves.

What we should have had throughout that 10 years is thermal power stations selling contracts to the hydros to back them up in the dry years with thermal owners organising their coal and fuel supplies to match. Well, we didn't have the contracts in place and we didn't have the coal supplies and that is why we have had dry year crises more often than we should have. The current industry changes shouldn't be necessary, they are an admission that the structure and the model are wrong. You have had government intervention telling people to swap their assets around and to rebalance their retail.

If you look at who has invested the most for energy security in New Zealand it is probably Contact Energy - in terms of their own thermal back-up and in terms of gas storage. If you go back to the days of ECNZ or NZED, there are now hundreds more projects waiting to be developed in New Zealand than we ever had. And also the resilience - we have handled the end of Maui gas without strife.

I think it is really hard to have a board fully empowered to take the hard decisions that you need from time to time without the scrutiny of the capital markets and a clear commercial agenda. It is virtually impossible for anyone like the Crown-Ownership Monitoring Unit to get close enough or understand the industry enough to be effective. I think 20 per cent privatisation will be transformational and a good thing for the country. It is a mistake to underestimate the difference it will make.

For TrustPower it would be empowering of our confidence to continue with generation development expenditure. That would step up. What are the SOE returns? It looks to me that returns are about half the levels of TrustPower's on the market value of the assets. If your returns are below commercial levels you should have to improve before anyone gives you more capital - that's really a very hard place to get to under full government ownership but inherent for capital market listed entities.

Would SOE privatisation change the retail market or TrustPower's retailing?

I think the retail performance of the SOEs would improve, cost structure-wise. I believe that there would be an expansion of retail competition and some new vigour to that retail competition. TrustPower would probably look at entering more of the main centres in terms of retailing, which currently we don't do, we are more provincial based, so we would probably widen the scope of our retail market and I think you would see some more liquidity in the contracts market that would help that out.

'Low energy prices don't help with energy efficiency investments and it is the wealthy who get most of the subsidy as they use the most energy - so it doesn't make any sense to me.'

Retail is very competitive and probably always will be with five large companies as well as smaller new entrants. In the short-term you could say it is more of a distorted retail market than a well-functioning competitive one. TrustPower's cost to serve is $110-$120. We don't know what it is in the SOEs, but we have read it is close to $300. It is very easy to be inefficient in retail if you allow yourself to be. Right now it is taxpayers who are getting miserable returns.

Is developing hydro generation too difficult in New Zealand?

With Wairau, would we have started it if we had known how long it would take and the annual cost of keeping the process running - possibly not. We had thought it would take two to three years and now I think we are in about year six. I think the resource consenting process did need to have a little bit of attention just to mitigate against delaying, spoiling-type appeals and complaints. I think the process as a whole is quite a sound one and it's one that as New Zealanders we all believe in. We have got to look after waterways and water quality and bird life and minimum flow regimes are a necessary part of it. So there is no particular feeling that things shouldn't go through quite an exhaustive process; it just shouldn't go on forever for no good reason and I think that is where the change is needed.

Are irrigation projects going to add value for TrustPower?

We think Coleridge is on track. We are already making progress in Canterbury. We have invested tens of millions to put pumps in at Highbank that will supply Barrhill Chertsey and their irrigation flows. It's using infrastructure that is there and avoiding the need for Barrhill Chertsey to build their own pipes. There are already pipes up the hill, so we're just using them properly. That sort of thing generates win-win and creates wealth for the country.

There will be trade-offs. We know that if we do less winter generation at Coleridge we can manage the lake to have good levels going into summer and that can add quite a bit to reliability of irrigation when there are low flows in the Rakaia River. So we think Coleridge has a role to play in increasing the reliability.

I think Canterbury irrigation is the low-hanging fruit for New Zealand in terms of a boost to agri-wealth. We probably have a view that soft commodities are going to do okay for the next 20 to 30 years if not forever. And that's simply on the basis of increasing populations, soil and water resources being limited and rising wealth in Asian markets. That's very, very good for New Zealand and our soft commodities. If we're going to turn that into a standard of living we've got to use what nature has given us. Again, I think the way ahead is really getting the process going and working through it and getting communities as a whole comfortable on all the agricultural practices.

Highbank power station with pumping and water holding facilities under construction.

Maximising The Value Of Water

Generating electricity isn't the only way TrustPower anticipates capturing value from its existing hydro power stations and expertise.

1,000 litres of water moving at a speed of 3.6 kilometres an hour (1 cubic metre a second) could fill a reservoir of approximately 30 billion litres in a year (30 million cubic metres). This water could be used to produce about 20,000 tonnes of wheat, or 1,000 tonnes of beef, or 30 million litres of milk. Sufficient food for perhaps 30,000 people (more on a bread diet, less with meat). If this water ran through a hydro power station after falling 100 metres it would produce sufficient electricity for about 1,000 average households. Hydro electric generation extracts energy from the movement of water (or more exactly from the water pressure) which still leaves the water available for agriculture; generation and irrigation can be compatible.

Owning a hydro power station means ownership of water storage and access, pipes/canals and consents, which can also have application for crop/pasture irrigation. TrustPower's Highbank power station near Ashburton in Mid Canterbury is part of the Rangitata/Highbank generation/irrigation scheme and TrustPower is now investing to expand the irrigation capacity. This particular development also illustrates how very long-life hydro power schemes may evolve. Over time they can have development options which create value for shareholders.

The logic and economic consequences of Canterbury irrigation was illustrated in 2010 (before the first earthquake) when Canterbury University held a competition to identify projects that have the potential to have $1 billion of sales within 20 years. The two winners were both Canterbury irrigation schemes that are at the planning/consenting stages of bringing water to 60,000 hectares between the Waimakariri and Rakaia rivers and 42,000 hectares by the Hurunui River.

The Rangitata/Highbank power and irrigation scheme was initiated in the 1930s to take advantage of high unemployment and was completed in 1944. It cost £2 million (35% over budget) to provide irrigation in summer and generation in winter. The scheme has gradually been expanded and today provides irrigation to approximately 64,000 hectares (about 20% of the Mid Canterbury plain, making it New Zealand's largest) and annual generation of 98 GWh (sufficient for 12,500 households).

Water is drawn from the Rangitata River into a 67 kilometre canal (the RDR) which in summer carries the water to irrigation schemes and Ashburton. In winter (or when water is not needed for irrigation/stock) the water is carried the whole distance of the RDR to the Rakaia where it is returned to the river via a 100 metre drop with the acceleration of the water down this drop producing energy for TrustPower's Highbank power station.

Each year from 10th September to 9th May irrigators have priority rights to water so little of it makes its way to the Highbank power station. For the rest of the year the power station has the priority right. Generation occurs in winter or in wet summers when the farmers do not want irrigation.

TrustPower is investing $15 million to enhance the scheme's irrigation capacity. This involves installing five pumps at Highbank to pump up to 5,000 litres a second (in a day over 400 million litres, or 400,000 cubic metres of water) out of the Rakaia River and 100 metres uphill into the RDR irrigation canal, ie. reversing the usual direction of flow.

The right to draw this water is held by the Barrhill Chertsey Irrigation Co-operative which faced a substantial engineering cost if it was to exercise its right to lift the water from the River to the Plain. By using TrustPower's pipe/canal infrastructure and pumps the farmers have significantly reduced their capital outlay while TrustPower receives a return on the capital it has invested.

Stage one of the project involves 5,000 litres a second and irrigation of approximately 10,000 hectares of arable, dairy and pasture land. It is hoped the scheme can be expanded. The farmers' Co-op has rights to draw up to 17,000 litres a second from the Rakaia and stage one uses less than a third of this. The value to the region (and New Zealand) of even the 10,000 hectare stage one can be inferred from the approximately $600 million irrigation of the original 64,000 hectares is calculated to inject into the mid-Canterbury economy each year.

A Barrhill Chertsey farmer wanting irrigation for 100 hectares (about 4 million litres a day) is obliged to invest $90,000 to acquire shares in the Co-op and to pay $64,000 in annual charges (CPI adjusted). The Co-op and its joint venture partner Electricity Ashburton have used this capital and other funds to develop $30 million of infrastructure linking the RDR canal to farms, including 60 kilometres of underground piping.

There are a series of subsequent stages which can be added as demand increases.

Stages	Water (litres/second)	Area (hectares)	TrustPower Accumulated Cost
2011	5,000	10,000	$15m
2012 -15	15,000	26,000	$100m
2020	22,000	44,000	$400-500m*

* includes 44 MW of additional generation

The follow-on stages involve additional pumps, canals and reticulation of water; they also involve using Coleridge storage and could incorporate increased generation capacity.

TrustPower's potential use of its Lake Coleridge water storage is a different type of generation-irrigation scheme to that which is now taking shape south of the Rakaia. Coleridge's storage would be used to hold water on behalf of farmers, effectively storing their water rather than TrustPower's. The water would then be released during summer when it would be of greatest value to the farmers.

Unlike the Barrhill Chertsey irrigation scheme which is able to use a lot of existing canal and pipe infrastructure, the scheme to the north of the Rakaia would require substantial investment in new facilities and it would impinge on existing generation.

The schemes have the potential to more than double the irrigated land in mid Canterbury resulting in significant additional food production. 80,000 hectares of irrigated land could produce as much as 1 million tones of wheat, sufficient food for over 500,000 people.

Stages	Water (litres/second)	Area (hectares)	Wheat (annual production)*
2011	5,000	10,000	100,000 tonnes
2012 -15	15,000	26,000	260,000 tonnes
2020	22,000	44,000	440,000 tonnes

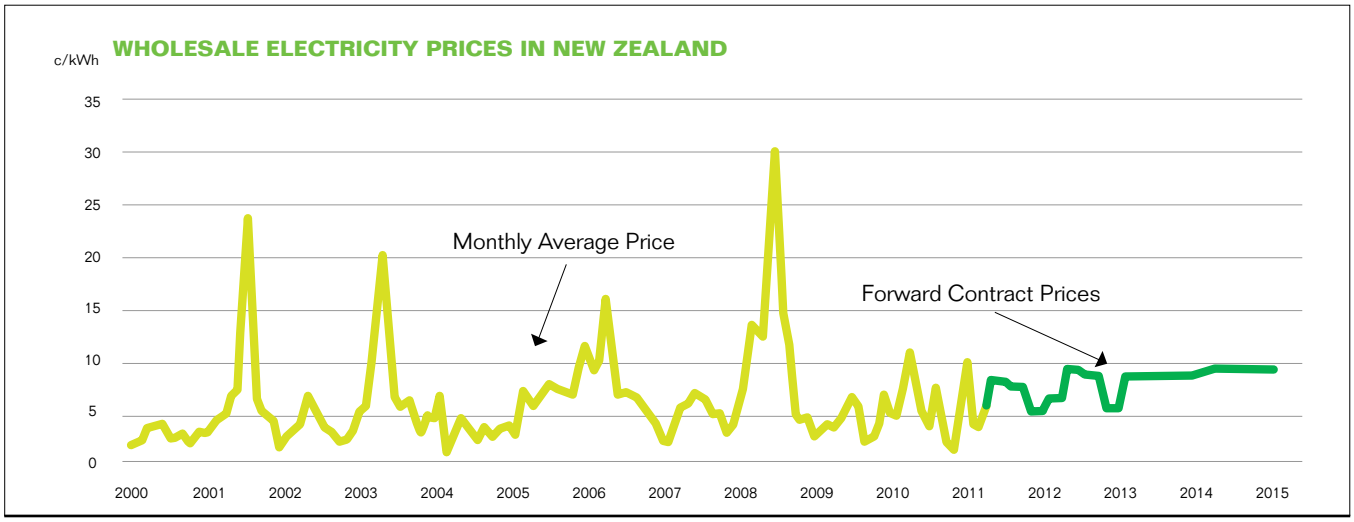
* approximate maximum theoretical production if all the land were used for wheat

Reliable irrigation has, as Canterbury University noted, the capacity to increase land productivity enormously. TrustPower's existing hydro schemes, especially those in Canterbury (where it is the only hydro generator), are likely to play a part.

The project illustrates the long-term development potential of TrustPower's 19 hydro schemes. When construction started on the Coleridge Power Station in 1911 it is unlikely much thought was given to having its water storage linked to irrigation of mid Canterbury.


Lake Coleridge
Coleridge Power Station
pumped inflow
Highbank Power & Pumping Station
Methven
Barrhill Churtsey
Rakaia River
normal inflow point
Ashburton Lyndhurst
(25,000Ha/13m³/sec)
Valetta
(7,300Ha/4.4m³/sec)
Ashburton
Mayfield Hinds
(32,000Ha/16.5m³/sec)
Rangitata River
Geraldine
RDR Irrigation Canal
Existing Irrigation Areas
Newly Irrigated Areas
Areas which may be irrigated in the future

Wholesale Electricity Prices In New Zealand



Over the last decade wholesale electricity prices in New Zealand have risen from about 4 cents per kWh to about 8 cents per kWh. Over the next few years they are likely to continue to rise to about 10 cents per kWh. By way of reference, the average household consumes about 8,000 kWh of electricity a year.

For TrustPower the rise in prices over the last decade has added about $80 million to annual earnings and the next 2 cents should add a further $50 million.

Rising electricity prices reflect the rising cost of generation; due to the end of the era of cheap gas/coal and the transition to more expensive renewable generation. This wasn't a conspiracy by generators, it reflects New Zealand's relative lack of cheap gas/coal and to a small extent it also reflects the pricing of emissions.

The situation can be compared to Australia which has abundant gas/coal, relatively low domestic prices for those fuels and consequently coal and gas fired power stations producing cheap electricity. However, Australian electricity prices will be susceptible to changes in the international prices of gas/coal and if Australia introduces emission pricing then the cost of burning gas/coal in power stations will rise.

New Zealand's move to renewable generation of electricity has pluses and minuses. The lack of cheap gas/coal and the need to use geothermal, wind and water means higher electricity prices today. But because renewable fuels are essentially unlimited (for New Zealand) it means the country is insulated from global events which impact the availability and cost of gas/coal. And it means that New Zealand electricity prices are largely insulated against rises in the price of carbon emissions.

New Zealand's sources of new generation make it possible to forecast electricity prices for the next twenty years based on reasonably likely scenarios. The future cost of gas, oil, coal or nuclear is largely unknowable because the price of each of these is subject to a complex set of political, environmental and technical influences. In 2003 US$100 a barrel for oil was not on anyone's horizon, in February 2011 nor were nuclear accidents in Japan. It isn't possible to be certain about the cost of electricity generated in New Zealand by wind/hydro/geothermal in 2030, but there is some confidence about the likely range and what factors could cause the outcome to fall outside of the range.

New Generation Capacity Since 2000

Year	Capacity	Fuel	Owner/Off take
2000	380	Gas	Contact
2000	44	Gas Co-gen	Contact
2000	112	Geothermal	MRP
2002	100	Hydro	Meridian
2004	36	Wind	TrustPower
2004	91	Wind	Meridian
2004	155	Diesel	Contact/Govt
2004	50	Gas	Genesis
2005	13	Geothermal	Contact
2007	70	Gas	MRP

Year	Capacity	Fuel	Owner/Off take
2007	385	Gas	Genesis
2007	93	Wind	TrustPower
2007	58	Wind	Meridian
2008	100	Geothermal	MRP
2009	143	Wind	Meridian
2010	23	Geothermal	Contact
2010	140	Geothermal	MRP
2010	200	Gas peaker	Contact
2011	64	Wind	Meridian
2011	36	Wind	TrustPower

Why Electricity Prices Rise & Fall

Three key factors are at play in determining electricity prices in the short and long term.

- The need for new power stations, which depends on changes to demand and the retirement of old stations.
- The cost of new generation. Or from the other perspective, the electricity price investors will expect a new power station to obtain for its generation to make them willing to provide the capital for the power station's construction.
- The reliability of supply and the volatility of demand. Peak demand for electricity tends to be much higher than average demand. Some power stations may be only turned on for a few hours each a year. Needless to say, they require very high electricity prices for those few hours to justify their existence.

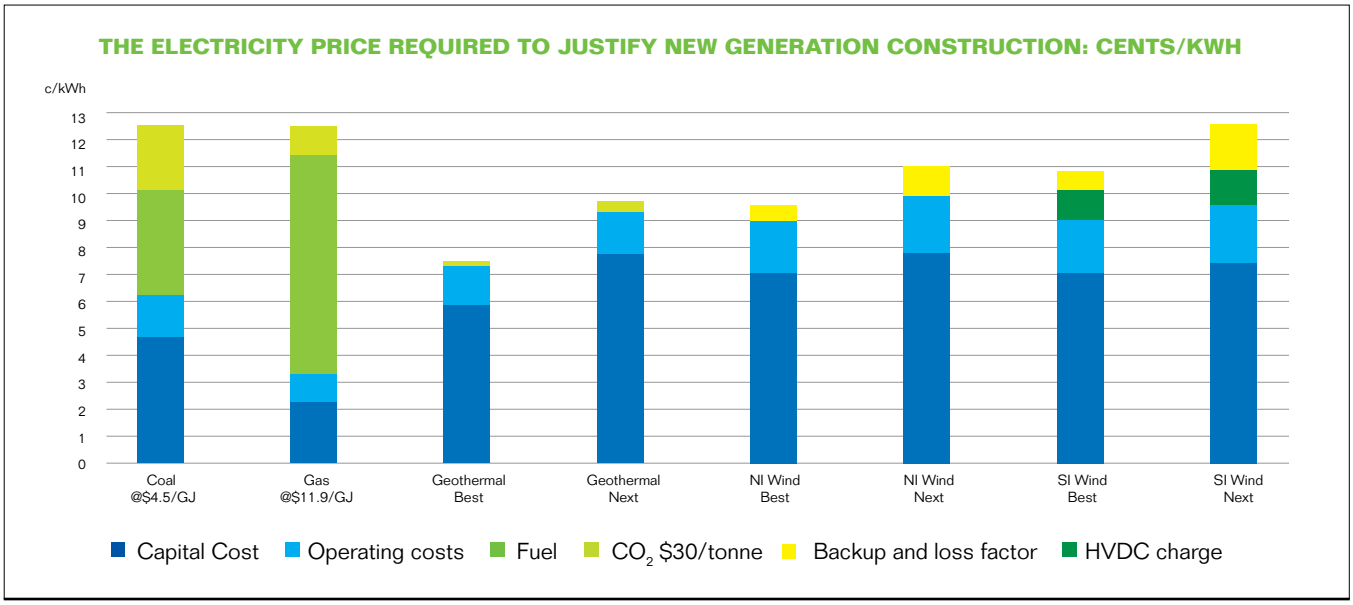
As noted above, about 20 medium/larger power stations have been commissioned in New Zealand over the last decade.

They provide 2,200MW of new capacity and output has risen about 8,000 GWH a year (sufficient for about 1 million households). This need for new plant is expected to continue.

The Economics of New Generation

If tomorrow someone invents a way to manufacture extremely low cost electricity, that will set the price of electricity in the market. Owners of existing power stations will lower the price of their generation or mothball/close plant. Conversely if the cost of the cheapest new generation facility requires electricity prices that are higher than what now pertains in the market, then market prices will rise, increasing the income of existing plant.

If the market is operating effectively it will always be the lowest cost plant that is built next. The following graph shows our best estimate of what currently represents New Zealand's "lowest cost plant":

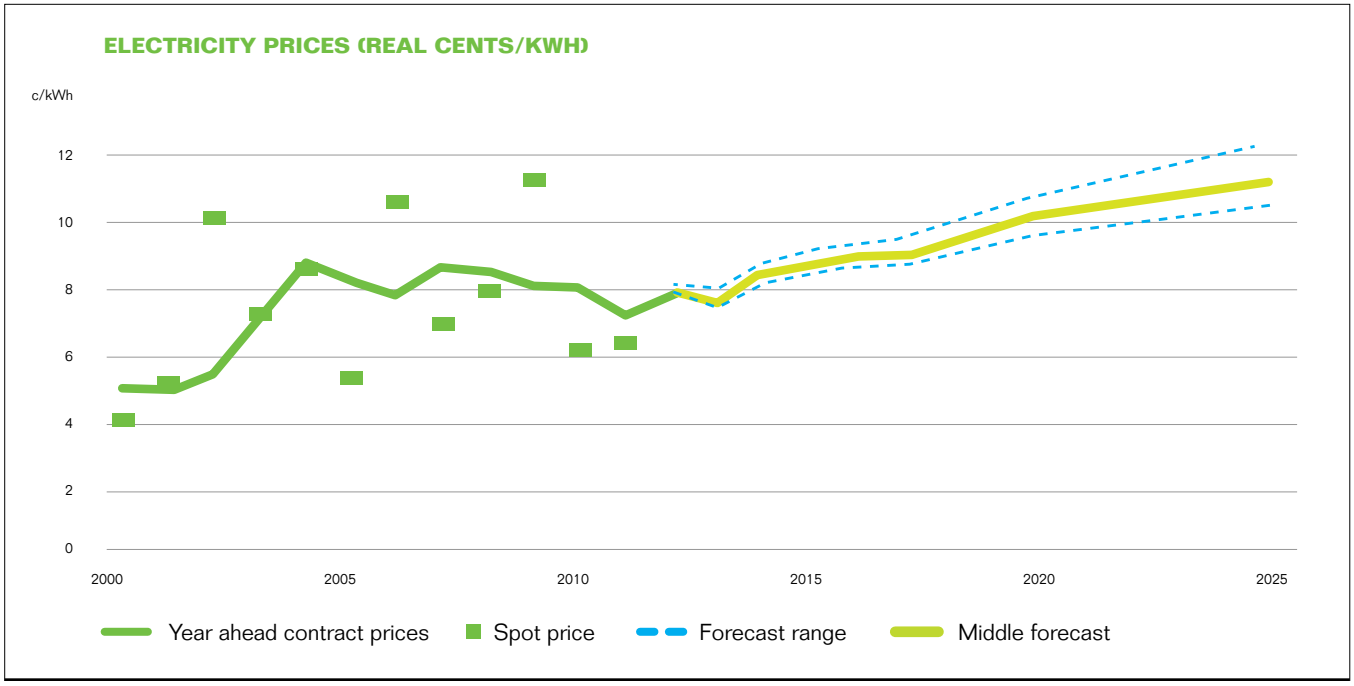


To explain the meaning of the graph. Take the left hand bar which gives the economics for a new coal fired power station. This station would need to sell its electricity output for 12.5 cents/kWh to be economic. The 12.5 cents is broken down as 4.7 cents to provide a return on the money invested building the plant, 1.4 cents to operate it, 4 cents for coal and 2.4 cents for emission rights.

It should be noted that none of these variables are completely certain or fixed from one year to the next. A number of government agencies and other power companies produce versions of this analysis and there are differences in opinion, but they are relatively minor. Even a 2003 forecast of NZ electricity prices in 2025 is reasonably close to what is forecast today for 2025. Which is unlikely to be true of oil price forecasts done in 2003 and 2011.

If the market is effective, the economic analysis indicated in the graph points to low cost geothermal as being the next plant built. While it is not explicit in the graph, it is expected that this resource will relatively quickly come to be fully utilised, which will require construction of increasingly expensive forms of generation. Electricity prices will gradually rise accordingly.

New hydro generation is not included in this table because its cost is completely location specific, and in any case there are only TrustPower's two projects which have consents. Also, the plausible amount of additional hydro capacity is too minor to have a significant impact on New Zealand medium term electricity prices.

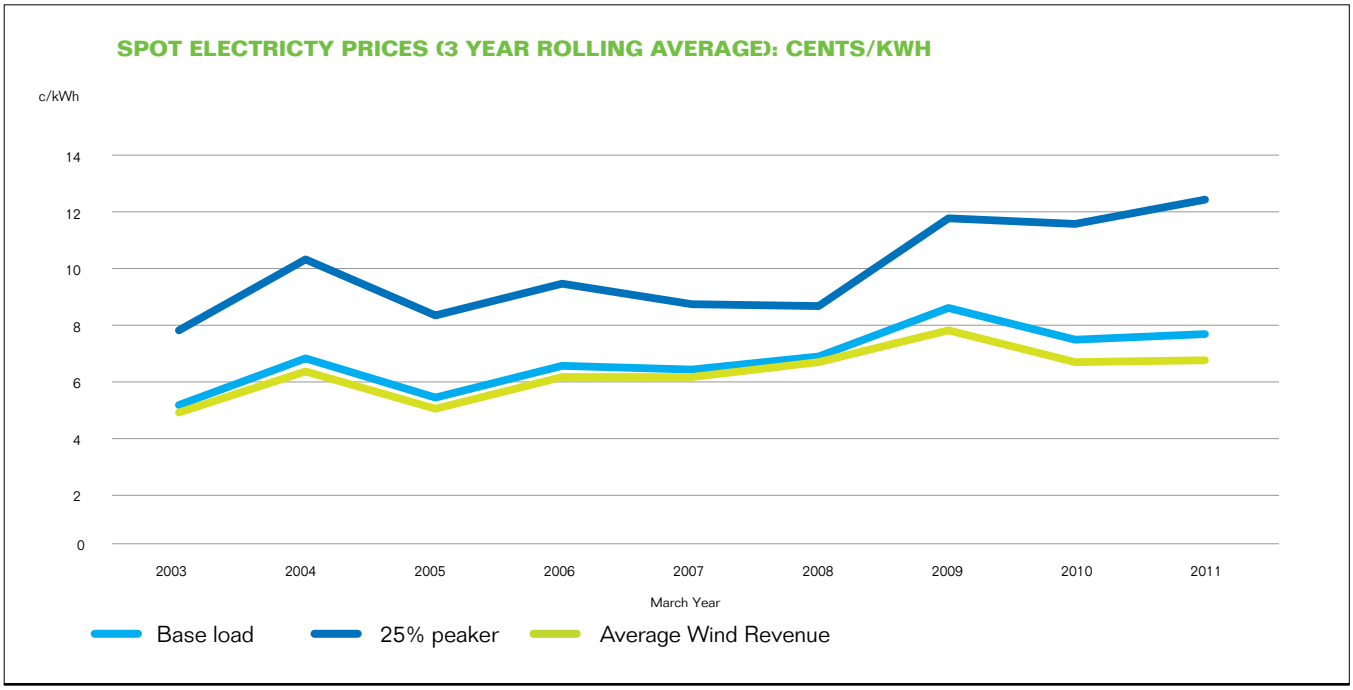


The process of starting with the lowest cost generation and gradually having to resort to higher cost options gives a projection of electricity prices as depicted in the graph at the top of page. This is implicitly saying "by 2020 the very low cost geothermal and wind will have been exhausted and higher cost plant will have to be installed resulting in a price (in 2011 dollars) of about 10 cents per kWh." Because there are still plenty of uncertainties the projected prices are set as a range. For instance, a weak NZ$ would increase the cost of imported power station components, or the cost of wind would rise more steeply if land owners increased rents faster than now expected.

Note that the forecast is of 'real electricity prices', that is before inflation.

Will the real electricity price be 10 cents per kWh in 2020? Possibly, if all of the forecast factors are reasonably accurate, but if there is a large find of cheaply accessible gas in Taranaki then expect something different. Conversely if a large amount of old existing plant were decommissioned or if consumption grew more than expected, then higher prices could arrive sooner. If the global price of oil/coal/gas doubles it will have little direct impact on New Zealand electricity prices. However high oil prices are likely to have some indirect effects; inflation will probably be higher (which could push up at least nominal electricity prices) and there may be more electric cars which would increase electricity demand.

The third factor noted as being relevant in setting electricity prices is the stability of supply and demand. The dots on the above graph are the average "spot" price of electricity in the relevant years. This price volatility is also shown on the graph at the start of this section. In January 2004 the average price of "spot" electricity was about 2 cents/kWh. In July 2008 it was about 31 cents/kWh. Mainly this will have reflected the availability of water for hydro generation. In dry 2001 hydro generation amounted to 22,400 GWh (58% of consumption), in wet 2004 it was 26,900 GWh (65%). Swings in hydro generation impact on the need to resort to more expensive alternative sources of electricity (or to pay users to stop consuming) which impacts on price.



Increasing use of wind will increase the variability of supply. Periods of wet windy weather will see lower prices than periods when it is still and dry. This effect is already happening. Over the last year a generator which only switched on during the 25% of the time when prices were at their daily highest will have received about 5 cents/kWh more than a generator which only received the average price. In 2003 the difference was about 3 cents/kWh.

The flip-side of this equation is that wind generators (who have no control over when they generate) receive a discount to the average price, which makes it more difficult for them to be economic. The discount is reflected in the Generation Economics graph on page 13.

TrustPower should benefit from this development. It owns hydro generation in the east and west of both Islands and should be able to match this hydro with wind. TrustPower will use its wind generation when that is available, but when it isn't the hydro will provide the back up, or be used to "top up" at higher price periods.

Electricity Prices: Spot, Contract and Long Run

Wholesale electricity prices may be talked about as "spot" which are determined every half hour, "long run" which tends to reflect the cost associated with new generation capacity, and "contract" which effectively links the short and longer term markets.

"Spot" wholesale electricity prices are determined every half hour and can be extremely variable. At times the "spot" price is zero. In the middle of a mild January night when little electricity is being consumed and if it happens to be windy or the hydro dams are spilling water wholesale electricity can be free. Conversely a cold, dry, still autumn evening may have very high prices care of high demand and the need to resort to expensive infrequently used thermal generation or having to pay some users to interrupt their load.

Most consumers are insulated against these half hourly fluctuations. For instance residential customers are unlikely to have their prices changed more than once a year. Electricity retailers manage price risk by owning generation or having contracts with generators which fix the price of their supply.

Long run prices are determined by the expected need for new power stations and the output prices the new power stations require to justify its construction.

Infratil's rationale for continuing to hold its stake in TrustPower is based on an expectation that the long run electricity price will continue to rise, which will be positive for TrustPower's earnings and value.

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