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ViewPoint

(11 May 2006)

Electricity Commission say - get used to high electricity prices

Electricity Commissions Press article on 3rd May was clear - electricity prices are going to rise; prices are set to increase and will continue to do so – get used to it. This position accepts increasing fuel costs and the steady decline of New Zealand's comparative advantage in low cost electricity generated from cheap natural resources. The article went on to say that the reforms are working, that competition within the electricity industry exists, and New Zealand has enough generation capacity to meet current and future electricity needs.

At the weekend Michael Cullen on TV One's Agenda programme was seen to say that he personally has grave doubts about the capability of the current framework of this market to deliver the kind of certainty we need.

Who is right probably depends on who has the best weather forecast. Electricity price and supply security is too important to depend on the weather.

The Electricity Commission has the responsibility for governance and regulation of the electricity industry. They do not have a defined central planning role and yet seem to be adopting one in the absence of any other leadership.

The Commission's principal objective is to ensure a secure electricity supply is generated and transmitted to all classes of consumers at the lowest practicable cost with minimal environmental impacts and is used efficiently.

We do not see any evidence or the characteristics that are associated with genuine markets amongst our generators, retailers, transmission and lines companies.

The tension between a system model based on public ownership and engineered safety margins against the free market's natural affinity to supply shortages must be resolved before we can expect to see secure cheap electricity once again as a comparative advantage in New Zealand.

New Zealand's electricity generation mix does not support competition. Different forms of generation (e.g. hydro, gas fired combined cycle, gas or coal fired steam) have different production costs and therefore cannot compete head on. Fuel-less sources such as hydro, geothermal and wind are cheaper than fossil fuelled thermal generation, and are "sold" first. Combined cycle, in the next higher cost layer, is often at the margin because it is cheaper than gas or coal fired steam generation, which is only used when the demand cannot be met by cheaper plant (in winter, and during rain shortages). The ownership of the generation in each cost layer is dominated by a different company. Because of this, it is more a question of the different generating companies complementing each other, not competing.

Generators are price setters. For effective competition to exist among generators there must be excess capacity (i.e. there must always be an unsuccessful offer at the margin). Electricity spot prices are well above the actual cost of generation, let alone the average cost, from even the most expensive generation method. Within the current market structure, generation companies are effectively incentivised to maintain a supply in a shortage. They are penalised if they provide excess 'reserve' capacity by receiving lower prices from the market and lower asset values. There is no incentive for generators to significantly expand plant or to provide cheap electricity. Any generation plant that is currently being installed is there to match the capacity required to meet the company's retail customer base, and hopefully retire less efficient or old plant. Where transmission is not guaranteed, generators are reluctant to sign up consumers in areas where they do not have adequate generation to supply them.

The economic impact of not having electricity is much greater than the cost of providing adequate reserve capacity. The "regulators" faith in the market was demonstrated by providing a price cap through the creation of the 150MW Whiranaki plant. It is worth noting that Whirinaki only has enough fuel in reserve for about twenty days of operation, and even that could not be fully utilized in a dry year crisis as transmission capacity would be severely constrained by the need to run all the North Island thermal generation flat out.

Our question remains - what if the rain does not come?

As New Zealand grows the risk increases, as more of the generation reserve is sold. Growth needs to be matched with investment. For example the transmission investment recently approved by the Electricity Commission was around $NZ 200m. Australia's total expenditure over the three years to 2005 was more than $1.6 billion, adding around 12 per cent to the aggregate value of the transmission businesses' regulated assets.

The excess capacity on the 220 kV transmission system has been eroded over the years, and has cost consumers as constraints have restricted supply and increased electricity prices. If the transmission system lacks the capacity to transmit all the power available from a source of low cost generation, the shortfall is made up by higher cost generation nearer the load. If the constraint is eliminated, the average cost of power will fall. In New Zealand system constraints have cost about $240 million over the last six years. Lack of investment in transmission assets will reduce system wide reliability. Tactical fixes delay the inevitable and play into the hands of yet more panic driven band aids like Whiranaki.

An example of a short-term 'tactical fix' follows the Electricity Commission claim that they have worked with Transpower to approve special arrangements for operating the HVDC link between the two islands. Research shows that all they have done to help Transpower was stop fining them for operating the link at full capacity. The link of course is now running at full capacity, providing even more concern as to the time of future link upgrades.

The Electricity Commissions ruling that current and future South Island generators have to pay for operating and maintaining the HVDC link is not considered to be equitable by many here in the South Island. The biggest effect of that Electricity Commission decision is that it has marginalised investment of new generation plant in the South Island. Trust Power has estimated that it will in future be 15% cheaper to build new generation in the North Island as a result of that decision. Thus effectively forcing generators to look towards short-term less RMA intensive solutions such as wind, or consider CO_2 emitting fossil fuel generation.

Last year, New Zealand used 42,000 GWh and had a peak demand of more than 7000 MW.

Overall load growth since 2000 has been at about 2.4% pa (NI 2.8% and SI 1.9%). It has been estimated that New Zealand require 6400MW of new generation by 2025 - equating to an average of 320 MW every year, well above the 130-150 MW that has been achieved over the last few years. The new Huntly EP3 gas fired station will provide for two years of growth, using one fuel source that is already in its terminal phase, and two others that are not particularly friendly to the environment. EP3 is smart technology, but it is not a great long term solution.

The comparison of Huntly EP3 and Coleridge in the Electricity Commission article was interesting. Both projects government sponsored, at the time Coleridge was commissioned in 1911 it supplied the total electricity needs of Christchurch – a bold decision. Huntly EP3 would need to be at least twice its planned capacity to achieve the same result today. Nearly a century later the power source at Coleridge is still viable, will the same be true about Huntly?

Geothermal generation is a cheaper and better alternative to thermal. But the RMA, as it stands, in combination with environmentalist objections make Geothermal hard to build. Only a small part can be provided by renewables, such as wind and small hydro. The abolishment of carbon credits and uncertainty of any future carbon tax or penalty have now reduced the financial viability of wind farms. A large gap is developing. At least 3500 MW of large scale generation must come from somewhere.

No major stations are being planned to meet load growths beyond EP3, and its fuel is running out, so what will fuel our future generation? Unless additional gas fields are found soon, we will have no other choice but to run on imported LNG gas. The result is both an economic and environmental disadvantage to New Zealand in comparison to our trading competitors. Why build our electricity price on the prevalent oil price and exchange rates when alternatives exist.

Moving away from effective reserve capacity and low cost generation sources such as large hydro will only mean one thing – higher prices for all consumers and the loss of a comparative advantage for New Zealand. Domestic users should be concerned about the increase in the wholesale spot prices. Spot price increases, driven largely by the increased use of thermal plant, will increase domestic electricity prices.

A secure electricity supply, low cost energy supply is absolutely crucial for economic growth. We need to take a long term view, and make a few contemporary bold decisions on generation (similar to the “lets build Coleridge” decision early last century) and put the transmission in place to supply electricity where ever it is needed. If we don’t, we risk continued shortages, high prices, and a downwards pressure on the economy. Worst of all when the rains don’t come; we will see the panic driven building of small, expensive, ineffective, inefficient, transmission limited and environmentally unfriendly generation.

My thanks to Andrew Young and Paul Guy who helped in the preparation of this article.

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