



Corner Cambridge Terrace &
Manchester Street
PO Box 13-152
Christchurch
New Zealand

Phone: 0064 3 353-2540
Facsimile: 0064 3 353-2549
Website: www.cma.org.nz
Email: cma@cma.org.nz

ViewPoint

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The reserve capacity has been sold – now what?

Canterbury manufacturers are suffering huge increases in the price of electricity. Many feel that their business and the jobs of their staff are being threatened. They also feel let down by those charged with planning and provision for a reliable and economic supply of electricity. Electricity is the life blood of a modern economy and New Zealand is short of it.

New Zealand generates about 60% of electricity from lake storage. We need autumn rain in the southern lake catchments for winter power generation. Normally by this time of year the lakes should be nearly full. But the rain did not happen, the lakes are half full and falling – tracking close to the driest year of recent times 1992, and much, much worse than 2003. Since 1992 demand for electricity has grown about 30%. Demand has grown, and storage is close to the 1992 year. It is not that hard to predict what might happen this winter and yet the Electricity Commission has the security indicator set to medium.

The short term issue has been with us during 2006, but with the indicator stuck on medium, the Electricity Commission demonstrates the opinion that New Zealand is not in another dry year crisis and that we should not be concerned about rolling blackouts this winter. With the evidence so clear how much of the position is political – don't scare the natives and hope for rain!

Consistent with the 1-in-60 dry year security of supply policy, the Electricity Commission is required to define a minimum hydro zone "minzone", as the trigger for the Electricity Commission to do something. Once the minzone is breached the Electricity Commission have the authority to initiate a maximum of 1200GWh over a four month period from the 150MW diesel fired reserve power station under their control at Whiranaki, and to utilize other reserve generation contracts, to call for additional demand side usage/price signaling, and the possible relaxation of transmission constraints to maximize thermal supply utilization and in extreme situations seek resource consent flexibility.

The Electricity Commission is also required to define a second (emergency) zone that is below the minzone, which would trigger emergency conservation measures such as conservation campaigns, relaxation of transmission/system operation quality, extended water heating cuts, rolling cuts, mandatory restrictions including street lighting or commercial signage, targeted restrictions including savings at government departments and schools, relaxed resource consent restrictions on thermal emission or hydro limits, and consumer voltage restrictions. According to the current three-month NIWA rainfall predictions the emergency zone levels could well be reached within the next couple of months.

Electricity shortages are more than simple inconveniences. The 1992 crisis directly knocked about \$660 million out of the economy because of industry cutbacks and much more as New Zealand suppliers lost the confidence of international customers. The availability of competitively priced energy (with respect to our trading partners) is based on hydro-generation; without long term planning, rainfall to the southern lakes is the main determinant of how much we pay for our electricity. If it rains heavily, the price will fall. If it doesn't rain, the price skyrockets. As shown in the graph below we are currently in the latter situation. The other point to draw from the graph is the escalation in the average spot price since February 2005, this is a further indication that we are growing into deeper supply shortages.

Economic growth erodes the reserve capacity. New capacity does not maintain the reserve, and the provision of large, low cost per unit generation is years away. As the reserve is wiped away the pain first starts in the margin. Manufacturers and others exposed to the spot market are the first to feel the pain of a supply shortage, Those on fixed price contracts are protected for a while, but in the end price signals will reach every voter.

In the short term the observed responses seem inadequate. In the longer term the "market" model has been consuming the reserve capacity built into the New Zealand electricity system by the "engineers" prior to the reforms. Planning is no longer system wide. Inadequate transmission capacity in the Taupo region limits the amount of power that can be transmitted north of Lake Taupo from the South Island and Taranaki. If the Whiranaki Reserve Station had been sited at Marsden Pt and the combined cycle station now being built in Huntly would had been built at Otahuhu, the need to build the 400kV line currently creating so much controversy in the Waikato could have been deferred for many years

Each year growth in the economy demands an additional 310MW of generation. To get back to a secure situation and retire 2200MW of old thermal plant (Huntly, New Plymouth, Otahuhu, Southdown) approximately 4000MW of new generation is required.

No new major transmission lines have been built and only small generating plants, such as the Tararua & Te Apiti wind farms, with a combined capacity of 150MW, have come on stream recently. Genesis's combined-cycle gas turbine plant, a 385MW upgrade at Huntly, is the only major plant of note coming on stream towards the end of 2006. If one of our big power plants had a breakdown, we would immediately be in serious difficulty.

Renewable energy, such as more wind generation, can provide for some growth but a dependence on wind and rain needs a substantial buffer of reserve capacity. The pre-reform system did provide a buffer, a buffer the market model has since consumed. The consumption of this reserve capacity sits at the heart of the price and supply concerns we see today.

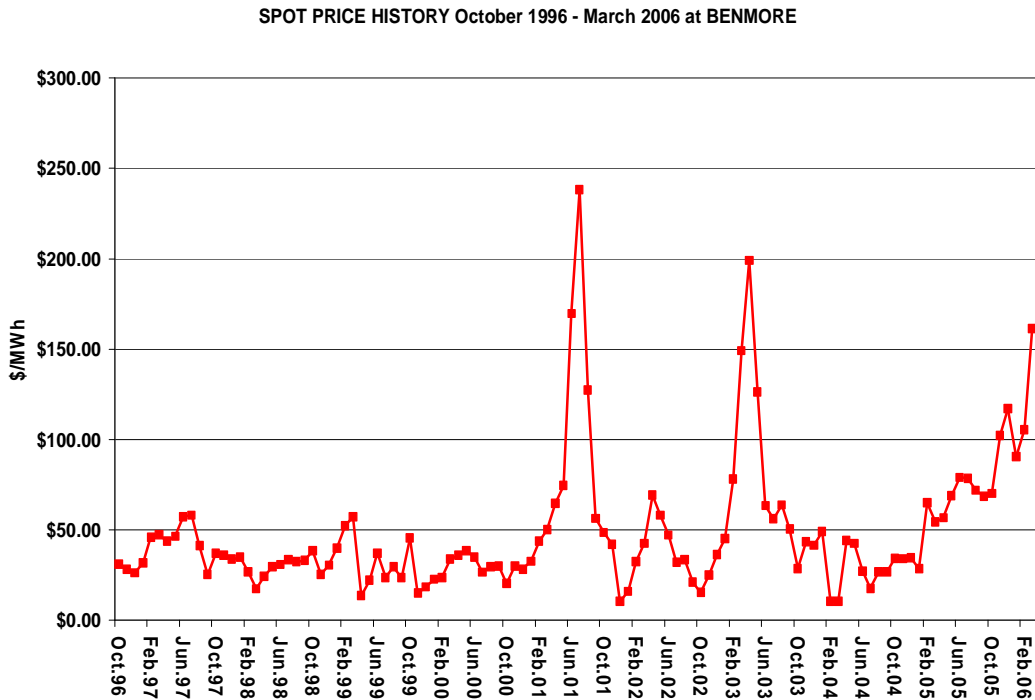
Recent proposals by Transpower to improve electricity supply into Auckland have resulted in a standoff with the Electricity Commission on the method and timing of the upgrade, and the Commerce Commission on the funding of the upgrade. Generation that takes full advantage of the natural opportunities New Zealand enjoys, as a cost advantage, are likely to have or exhibit adverse environmental impacts that cannot always be fully avoided, remedied or mitigated. In the face of the high economic cost of shortages, the long time frame for new transmission & generation imposed by practical constraints and exacerbated by the Resource Management Act, and the pressure on the generators to produce short term profits, the market has not provided long term supply and price security.

In this framework it should be no surprise that the "market" model drives the system into a marginal supply shortage where "windfall" profits accrue to both private and state owned generators, and that generators hang back from the provision of more large scale hydro generation. We might have local efficiency in parts of the system but the total system lacks end to end coordination.

An optimum system would provide a reliable supply of electricity at the lowest possible cost. It would also ensure open competition in the provision and operation of power stations, ensure that the benefit of our low cost hydro remains with the consumers (instead of windfall profits to the generators), maximise the benefit from our renewable resources by backing them up with fossil fuel and other plant as reserve capacity.

This would remove uncertainty in price and availability of electricity into the future – all up electricity prices will only fall if substantial low cost generation is put in place well before it is desperately needed. The option is to live in a supply constrained world, with all that entails, forever.

The market model has failed to trigger the construction of more low cost hydro generation. As these projects take, disregarding RMA impacts, the best part of a decade we are already about 11 years late – better get on with it soon.



For more information contact: John Walley on 021 809 631