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Dear Kate

Comments on Consultation Paper- Scarcity Pricing and Compulsory Contracting options

Thank you for the opportunity to provide comments on the Scarcity Pricing and Compulsory Contracting options consultation paper published by the Electricity Commission in October 2009. Pan Pac agrees with your definition of the problems stated in Para 2.1.1

The principle issue for security of electricity supply is due to the high level of supply derived from hydro. Prolonged low inflows during drought events combined with insufficient storage capacity results in reduced hydro capacity, giving rise to concerns of insufficient electricity supply. These events have been relatively frequent since year 2000, nearly biannual. The consultative study refers to years 2001, 2003, 2008 and a near miss in 2006. The report also reveals that no rationing was required during these events and or since the inception of the electricity market.

Pan Pac observations agree these events are due to short falls in hydro inflows due to long dry periods (droughts). Most hydro electricity is located in the South Island and during these periods electricity is sent south from the North Island. The 2008 episode identified issues with capacity to send enough electricity south due to transmission constraints. This constrained the reserve generators effectiveness from being on the wrong side of the transmission constraint.

In summary the issue is insufficient storage to provide protection against periods of drought.

Storage Capacity

The 2008 drought water shortfall was estimated by the Winter Study Group to be about 3700 GWH. This is about the same as the total New Zealand storage of about 4000 GWH, which is about 15% of the normal annual inflows of about 26,000 GWH. Electricity supply was affected from February to August, about 6 months. The electricity shortfall during the drought was about 30%.

The current level of storage is small and struggles to effectively spread the annual variation of inflows to generation outflow requirements in normal non-drought years. It is inadequate to deal with significant drought events.

Even so, as the study reports, no rationing has been required since 1996. Brown-outs last occurred in 1992. The consultation paper also suggests that rationing is probably a one in 80 to 100 year probability, with near miss events as in recent years one in 5-6 years events (Para. App. 5.1e)

The significant issue from Pan Pac's experience is that during recent events, there was with hindsight, no electricity supply crisis, but there were pricing crises. During these periods wholesale spot prices were more than double price levels during a normal year and were well above the SRMP of generators, showing market failure and application of market power from the generators.

The consultation paper observes that the conservation campaign to reduce electricity usage during these periods did reduce usage, confirmation that the market had failed and that conservation programs succeeded.

The financial beneficiaries of this lower demand were mostly retailers who had insufficient supply from their generator arm and had to purchase from the wholesale spot market. The reduced electricity usage during the conservation campaign reduced their purchases from the spot market, and reduced consequent losses on retail sales. I see little in the consultation paper that will change this situation and believe conservation campaigns will continue to be necessary. Pan Pac believes conservation campaigns give false credence to the market prices prevalent during these periods. These prices, which are the result of market failure, are not set by effective competitive bidding on a SRMP basis. These prices are unacceptable and ways to eliminate these episodes need to be found urgently. If the market has failed some other protection for consumers is required.

Wholesale spot users of electricity, such as Pan Pac, reduced consumption because of unaffordable prices and only maintained reduced usage through hedges. This created significant loss through lost production, made even more painful with the realisation in hindsight there was not a supply problem, and hence the lost production was most likely unnecessary.

All consumers who respond by reducing load during a conservation program should receive compensation for their inconvenience and loss.

The report suggests that mechanism to overcome these inequities is required, and the consultation paper (Para. 5-1) concluded there are two options that may overcome scarcity issue. Pan Pac believes there is a third option that would fix the problem and also most likely eliminate market power.

Third Option- Increase water storage to eliminate drought effects

The cause of the problem is insufficient water storage to overcome extended drought periods. The obvious solution is to increase storage. In this respect New Zealand is blessed with an opportunity in the proposed Lake Onslow pumped storage scheme, which has the potential for storing up to 12,000 GWh of electrical energy. This could be complemented in the North Island with inter dam pumped storage.

By having such facility electricity prices would be fully buffered from drought events and hydro spillages. The facility would have additional advantages, for example would help facilitate intermittent wind generation and complement must-run electricity such as geothermal.

Such a scheme would, by eliminating drought shortfalls also eliminate market power, and reduce the generators incomes significantly. As identified by Wolak >4 billion, and by extension including the 2008 event, about >6 billion dollars of extra income was obtained through market power. This revenue from market power can not be justified.

This problem appears to be impossible to solve by market modifications, new and more hedge methods and other paper interventions. Markets can not solve all problems equably.

Most of the benefits of eliminating market power accrue to the users of electricity, not the owner of the pumped storage facility. This inability to capture the benefits of pumped storage mean it most likely can not fund itself from market revenues. This is a case where markets fail to create the optimum economic efficiency and benefit.

The pumped storage project would stabilise electricity prices, practically eliminate market failure due to droughts, and eliminate of market power revenue. The project would have saved the market power income received by generators of about 6 billion dollars recently. Due to these effects the project would have a huge benefit with significant payback to New Zealand. The stabilisation of electricity prices would have huge benefits in growing the New Zealand economy through reliable stable and competitive international prices. It would also reduce the risk in building new generation capability through certainty of pricing and revenue.

Funding of such a scheme would be as for the current reserve generator, from a flat fee on all electricity prices. This would be significantly less then the current market power revenue, and would be reflected immediately in a reduced wholesale price and spread longer term into the retail price. All of this in addition to eliminating dry year risk of supply from the New Zealand electricity system.

The current reserve scheme recognises many of these issues. The concept of a reserve scheme is sound. The current scheme at Whirinaki was a good first attempt and much has been learned However the 160 MW facility is too small. I believe a reserve generator should have a capacity of at least 500 to 600 MW.

During the 2008 winter the electricity dispatched South averaged about 226 MW, but was constrained by transmission capacity. Whirinaki is the wrong location for reserve capacity, because drought mainly affects the South Island and Whirinaki is on the wrong side of transmission constraints. Whirinaki does not curtail market power, and conversely, in my opinion, in 2008 helped condone the unacceptable market power prices that happened.

Whirinaki is diesel fuelled which is very expensive and uneconomic. At the very least Whirinaki should be gas powered to reduce cost to around $100/MWH and located in Wellington on the right side of the transmission constraint. Even so it is still too small and will not address market power.

Scarcity Pricing

Scarcity pricing is suggested as a means to overcome shortfalls in electricity supply capacity. The consultation paper proposes to have big price rises in wholesale spot prices when a short fall in hydro capacity develops, which they expect will compel consumers to reduce electricity usage. The consultation paper study proposal does not appear significantly different to what happens now, where prices regularly rise more than double normal prices due to use of market power, and at times more than 6 fold, as happened during the 2008 crisis. **Pan Pac does not think this concept will work as it has not worked to date.**

Reduction in electricity usage is only an option for the few users exposed to spot prices as was the case during past crises. During the 2008 crisis practically all discretionary wholesale spot usage ceased. In Pan Pac's case a month and a half of pulp production was shed, about 30,000 ADT, and a shipment of pulp had to be cancelled. A significant loss in capacity such as this threatens the long-term viability of pulp manufacture by Pan Pac. When electricity prices rise above $100/ MWh pulp manufacture becomes uneconomic.

The suggestion that higher prices are necessary for customer user response is not true. To suggest prices above $500/MWh is totally unrealistic and shows a poor understanding of commercial reality

Pan Pac accepts that the lack of user response to high spot prices is a major impediment for a proper functioning efficient wholesale electricity market. The reason for the lack of response is that nearly 90% of electricity use is through fixed price contracts. As a result 90% of the load has no economic signal and the only way to reduce electricity is to use other means, such as a conservation program, which is a non-market mechanism. Furthermore, most electricity is distributed by retailers who are an arm of the generators, that is through vertical integration. The result is that nearly 90% of the electricity traded on the wholesale market is sold from the generating arm to the retailing arm of the same company. Only when a generator loses some generating capacity through, for example, a drought, do they need to procure large quantities from other generators on the spot market. At this point they are keen to have a conservation program to reduce their exposure to the spot price.

The issue is how to make retail customers become market sensitive and responsive. Increasing spot prices above the already excessive market power prices that now occur will have little effect for the reasons discussed. Wholesale users will and do respond, at times even below their hedged level

Pan Pac supports and strongly advocates introduction of smart meters that allow customers/users to purchase directly off the wholesale market in real time. Ownership of these meters is probably best with the lines companies, and independent of retail customer capture. Such meters along with smart switching of consuming devices would empower the customer to program these devices to only operate at prices acceptable to them and be fully responsive to spot prices. A consequence of this would be reduced demand when higher prices occur and discipline of use of market power by responding to excessively high prices. Both volume of electricity and capacity peaks would be reduced greatly, helping overcome supply issues. This solution would also eliminate the vertical integration issue.

The study suggests that the beneficiaries of conservation programs are retailers who are short of supply from their generating arms. They benefit from reduced requirement to purchase electricity at high market prices. The study proposes retailers should, in principle, reward users who reduce load. Such an option may have some merit in the short term until longer term solutions such as smart meters are in significant use.

An alternative could be, as a conservation program is initiated, to define a proportion of the consumers load to be saved. The average load for the consumer, based on historical usage, would be determined and that load less the proportion to be saved given fixed price protection. Usage above this would have fixed price protection removed, and be open to reflect the wholesale spot price. Any use of this electricity would be charged at the spot price, but additionally any savings made would be reimbursed at the spot price. Such a program would apply to all consumers/ users of electricity.

It is unlikely that consumers will respond significantly to a refund, especially if as indicated in the consultation paper, it amounts to a dollar per day. They are more likely to respond to a price increase. The signalled price increase would also reinforce the difficulty the nation is facing.

This method proposed would prevent freeloading, which is in danger of occurring should some suggestions of the consultation paper be put in place.

Compulsory Contracting.

More work is needed for this option; certainly more evaluation of how well it is working in other jurisdictions would be useful. It appears it may work but is rather complicated and difficult to understand from the consultation paper. This uncertainty makes it impossible to consider at this stage.

The idea that more hedging could be a solution appears rather optimistic and theoretical, taking into account about 90% of electricity is currently retailed on fixed price (hedge equivalent). 90% penetration appears to me about as good a penetration as it gets, especially when considering the variations in supply due to varying water inflows.

Mandatory hedging and contracting appears a circuitous way to achieve direct purchasing. It would be preferable to abolish the wholesale market and to return to normal commercial terms of purchasing between seller and buyer, as most goods are exchanged. The user would have a direct relationship with the seller rather than some virtual seller as the market now is. Electricity would be sold on negotiated terms agreed by seller and buyer. The issue of supply shortages would then need to become part of such contracts and not just force majeure.

Over seas Experience

I have sought to find an efficient and working market design from elsewhere in the world but have been unable to find one. There appears little chance that New Zealand alone will solve these problems.

The main issue for the New Zealand market is the wholesale market becoming dysfunctional during significant drought periods with insufficient water storage to buffer the impact of the drought. A consequence of this is the exercise of market power by generators during these short falls, which affects New Zealand's competitiveness and reputation as a good place to invest.

New Zealand droughts are rather small and relatively brief compared to most other countries. At worst water flows rarely fall below half of normal for any extensive period of time. Only the Waikato and Waitaki systems have any significant storage, with output tied to run-of-river in other generating systems.

The solution to inadequate water storage is to increase water storage capacity. New Zealand is fortunate that a ready solution is available in the Lake Onslow pumped storage system. It is recognised as possibly the largest available in the Southern Hemisphere at around 12,000 GWh potential, that is about 3 times the current storage in New Zealand.

Commission Questions

Q1	Generators Market power results in excessive and uneconomic prices. Price signals are opaque to most retail and SME consumers and as such no significant response to higher prices occurs. Conservation programs are then required, which achieve their purpose.
Q2	Vertical integration between generators and retailers causes virtual hedging between their arms resulting in the wholesale market becoming dysfunctional during supply shortfalls primarily caused by droughts.
Q3	Scarcity pricing already exists with market power price rises. Pan Pac can see no improvement from the proposal of scarcity pricing. Pan Pac has concerns at the prices used in illustration showing a complete misunderstanding of the commercial realities for users of electricity for commercial purposes. Potentially may have small merit as a stop gap measure but unlikely to be significantly better then existing.
Q4	Increase New Zealand's water storage. Most likely this cannot be done by market means as explained previously. It would need to be an extension of the current reserve scheme as current at Whirinaki. That is, the capital funded by an electricity flat levy.
Q5	In the long term eliminate scarcity pricing by increasing water storage to buffer against droughts. In the short term the retail sector should adopt a carrot and stick approach. During a conservation program require that x% of previous normal years monthly consumption is taken off fixed price and exposed to average weighted spot price for the period. Energy saved should be paid at the same rate. Longer term have lines companies install smart meters so that consumers can buy real time off the spot market
Q6	Very cautious with such a study as its likelihood of success is small. Despite these concerns the study should progress. How ever a study into a scheme to increase water storage is urgent. Overseas experience shows nobody has solved this problem and it appears are unlikely to with regulations and market mechanisms. The only solution with a guaranteed high level of success is to eliminate the issue of insufficient water by increasing water storage, with the best current option being the Lake Onslow scheme.

Pan Pac has an ongoing interest in the result of your studies and wishes to be kept informed of progress, and is available for further discussion if necessary to assist.

Yours sincerely,

Fred Staples

GM Pulp