

MAJOR ELECTRICITY USERS' GROUP

29 February 2008

Mr Charles Chauvel
Chairman
Finance and Expenditure Committee
Parliament

By email to carol.brouwer@parliament.govt.nz

Dear Mr Chauvel

**Submissions on the Climate Change (Emissions Trading and Renewable Preference) Bill –
Part 2 in relation to a 10 year ban on new thermal power stations**

This is a submission by the Major Electricity Users' Group (MEUG) on those sections of the Climate Change (Emissions Trading and Renewable Preference) Bill (the "Bill") in relation to a 10 year ban on new thermal power stations.

MEUG is making a separate submission on that part of the Bill proposing an Emissions Trading Scheme ("ETS"). We have separated these submissions because:

- MEUG is highly critical of the proposed ban on new thermal generation. There are immediate and long term risks to the New Zealand economy that we believe warrant the Select Committee urgently advising the Minister that Part 2 of the Bill should be withdrawn immediately.
- While significant work is needed on the ETS provisions, MEUG is supportive of Parliament putting in place mechanisms for greenhouse gas emissions reporting and market mechanisms to abate emissions where economic to do so. The trading mechanisms need to be better defined and risks assessed before the public can comment on the proposals or the Committee report back to the House. One option that needs considering is aligning the design and timing of our ETS with the ETS Australia is working on. The separate submission by MEUG discusses this recommendation.

Detailed submissions on the proposed ban on new thermal generation follow.

Yours sincerely

Ralph Matthes
Executive Director

**Submissions on the Climate Change (Emissions Trading and Renewable Preference) Bill –
Part 2 in relation to a ban on new thermal power stations**

Introduction

1. The Major Electricity Users' Group (MEUG) comprises 20 individual companies and 2 trade associations. Collectively members of the group consumer approximately 29% of total electricity demand in New Zealand. A list of members and the mission statement of MEUG are set out in appendix 1.
2. Should the ban proceed there are a number of problems that will arise. These include increased economy wide risks to security of electricity supply and potentially unnecessary higher electricity prices. As an important part of the productive sector, MEUG members will therefore also be materially affected. Several MEUG members are making their own submissions. MEUG members have been consulted during the drafting of this submission.
3. MEUG request to be heard before the Finance and Expenditure Committee (the "Committee") to make representations on the Bill. The presenters will be Mr Terrence Currie, Chairman, and Mr Ralph Matthes, Executive Director.
4. Depending on timing and resources, there may be new evidence regarding the ban that we will wish to table with the Committee. If that work involves independent expert advice; those experts may also present to the Committee.
5. The balance of this submission discusses:
 - Why the ban is redundant given an ETS will price greenhouse emissions into the market;
 - The detriments associated with the ban including increased risk to security of supply, forgoing the opportunity for a lower electricity price path, adverse impacts on the gas market and reduced investor confidence in our regulatory framework;
 - The haste and lack of proper consideration of whether there was a policy problem to be solved and the proposed solution; and
 - Summary of recommendations by MEUG.

The ban is redundant given an ETS will price greenhouse gas emissions into the market

6. The ETS provisions of the Bill set out a number of pre-cursors needed for trading greenhouse gases emission units and a trading mechanism. The ETS provisions of the Bill are a step towards introducing a price to reflect the global wide externalities of greenhouse gas emissions. Some sort of ETS is likely in the medium term¹.
7. All sectors of the New Zealand economy will eventually need to take into account the global price of greenhouse gas emissions; including the electricity sector. A globally set price will ensure least cost abatement and efficient investment across all countries including New Zealand. A ban on new thermal generation investment or intervention in any other part of the New Zealand economy (eg a ban on new methane emitting livestock) is redundant given an ETS will price greenhouse gas emissions into the economy.
8. The proposed ban cuts right across this global market solution. The ban is a solution reminiscent of the days of a command and control approach when governments didn't trust that market solutions would align with politically determined production targets.

¹ MEUG suggest more work is needed to understand the details and impacts of the ETS framework and proposed timing of the measures in the Bill. Instead we suggest the alternative of aligning our design and timing with an Australian ETS needs further consideration. This proposal is set out in the separate MEUG submission on the ETS provisions of the Bill.

9. The ban may have the perverse outcome of increasing global greenhouse gas emissions. For example a ban will raise the price of power in New Zealand because otherwise economic base-load thermal plant cannot be built and higher cost renewables will be needed. Business investment will migrate from New Zealand as a result of the relatively higher electricity prices. However the incremental emissions from generation in those countries that business migrates to is likely, on average, to be higher than that of modern efficient Combined Cycle Gas Turbines (CCGT) in New Zealand.

Reducing supply options to the market increases risk to security of supply

10. The electricity market is characterised by a range of uncertainties affecting supply and demand. These uncertainties affect the second by second matching of supply to meet demand through to longer investment decisions that take years to implement. Electricity markets throughout the world must manage the same uncertainties; although the New Zealand market with its existing very high percentage of renewable generation is not typical of most markets.

11. Those uncertainties are:

a) Uncertainty on renewable fuel supply:

- i) Hydro inflows are highly variable year to year and New Zealand's lake storage volumes are relatively small compared to other hydro based regimes.

Increasing New Zealand's dependence by relying on large new hydro power stations would significantly increase the risk to security of supply.

- ii) Geothermal fields sometimes can fail to deliver as predicted.

For example Contact Energy's Ohaaki geothermal power station was commissioned in 1989. The name plate generating capacity of the power station is 104 MW. As Contact Energy note²:

"The Ohaaki geothermal plant has capacity to provide 104 MW, enough to power 100,000 homes. However, recently Ohaaki has been operating at less than capacity due to a shortage of geothermal steam."

Actual output from Ohaaki geothermal power station is estimated³ to be 50 MW; that is half the installed capacity built in 1989.

- iii) Wind energy is highly unreliable. Already uncertain wind supply has led to peak supply problems.

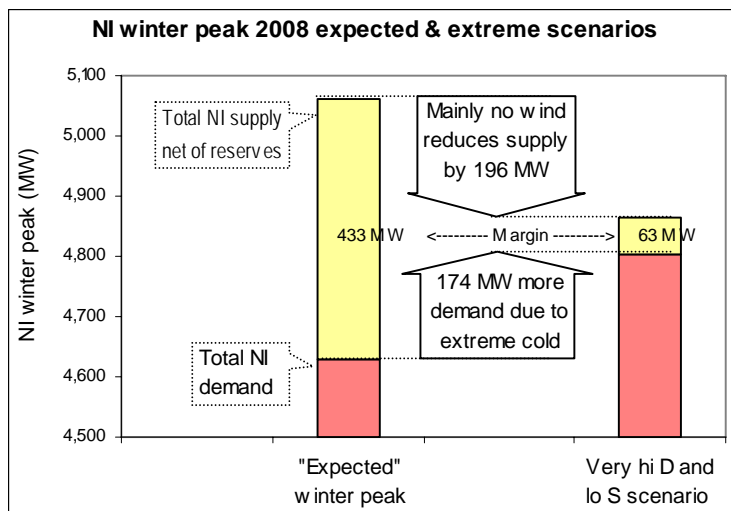
This was a critical issue over some hot calm afternoons this summer. The events of 4 February 2008 are summarised in appendix 2 as an example of the problems caused when wind supply fails.

The main supply risk for meeting peak demand this winter is the unreliability of wind. The diagram below illustrates how under "expected" North Island peak demand and peak supply there is a reasonable overlap⁴. Under an extreme scenario, for example a very cold frosty evening over all the North Island, demand will increase (mainly household heating) and at the same time lack of wind will reduce supply.

² Contact Energy brochure on their geothermal power stations, refer http://www.contactenergy.co.nz/web/pdf/environmental/Geothermal_brochure.pdf

³ Refer Ministry of Economic Development, Energy Data File June 2007, Table G.3a: Information on current generating plants, p108

⁴ The diagram is MEUG's summary of the National Winter Group final report to the Electricity Commission, 15 February 2008, refer <http://www.systemoperator.co.nz/notion/share/download.asp?cid=6107&csid=24634&mdid=&file=%2Fupload%2Fnotion%2Fsectionimages%2F24634%5Fnwg%2D2008%2Dreport%2D15%2Dfeb%2D08%2DEpdf>



MEUG is very concerned that while the prospects for meeting extreme winter peak demand this winter are tight, the problem will become critical for winter 2009 if no peaking plant is commissioned. As explained in paragraph 11 b) iv) below we think it unlikely that an exemption to allow peaking thermal plant to be in place by winter 2009 is possible.

- b) Uncertainty in ensuring timely economic generation and transmission investment:
- i) Renewable generation may not gain RMA consents in time due to appeals and delays. Experience to date has shown modern CCGT plants can obtain consents within a reasonable time whereas several renewable options have not. Even with the higher use of the RMA call-in option there is no certainty that the needed rate of increase in generation capacity can be met solely by renewables over the next decade. As the proposed Project Hayes wind farm illustrates, not all requests for call-ins are accepted by Government.
 - ii) Transmission to transport power from renewable generation located far from demand centres depends on decisions by the Electricity Commission and RMA consenting authorities. Both can take time and outcomes are uncertain. Decisions by the Electricity Commission and RMA consenting authorities can and are being appealed. This can also delay transmission investment and hence delivery of power from remote renewable generation to demand centres.

New CCGT plant located in Auckland would not be as prone to similar delays.
 - iii) The cost of new wind turbines has increased significantly driven by strong international demand and limited manufacturing capability (for good quality machines). This trend may self correct if international wind turbine supply increases, or it may continue over the next decade of the proposed ban. If the latter occurs then wind farm investors will not build high cost wind farms knowing prices will fall at the end of the 10 year ban when lower cost base load thermal plant is built.

MEUG does not believe we should be taking a risk of introducing a ban on the assumption or hope that renewable generation plant capital costs will decrease relative to thermal power station capital costs. Markets not Ministers should make those investment decisions.
 - iv) The exemption process in the Bill for certain new thermal generation will take some time to put in place and may be prone to delays.

Only after the ban is enacted can the Minister decide draft regulations to fit the final decision of Parliament on his Bill. Drafting, consulting on that draft, considering submissions and reporting back to Cabinet and then gazetting

regulations is unlikely to be completed this year. Only after the regulations setting out the process and guidelines for granting exemptions can parties that wish to make an application begin preparation to do so. Requests for exemption will need to be published for consultation by affected parties. The authority tasked with considering exemptions will need to follow due process before making a final recommendation back to the Minister to make an exemption. That will have to then be gazetted with the usual 1 month before coming into effect. Even optimistically the first exemption might be given by the middle of 2009. This is too late for investment decisions to be made and plant built to improve security of supply next winter.

Delays to this process might occur. For example it's possible some parties may seek a judicial review of a proposed exemption.

- c) Existing plant can fail unexpectedly. For example in December 2007 Contact Energy announced the closure of New Plymouth Power Station (300 MW) following the unexpected discovery of hitherto unknown asbestos. Nobody had predicted this might happen. The Electricity Commission forecasting work assumed New Plymouth Power Station would continue to be available for several years.
- d) Finally there is uncertainty on the rate of demand growth.

For example diversity of supply to Auckland is already limited and new supply options start to become critical from as early as the beginning of the next decade according to some estimates. It wouldn't take much for sustained higher than average growth in the Auckland economy to bring forward the critical dates by which electricity supply into Auckland was inadequate.

New base load CCGT power stations in Auckland would alleviate this risk.

- 12. Given these various uncertainties MEUG suggest it would be prudent to keep as many options open to the market for investment in new generation plant as possible. The proposed ban reduces those options. It's not difficult to foresee situations where a ban along with a number of adverse events (eg delays in consenting coupled with strong GDP growth) conspires to create a security of supply crises.

Forgoing the opportunity for lower electricity prices

- 13. There is a possibility that consumers will forgo lower electricity prices should the ban proceed. This arises in a scenario where New Zealand's gas reserves continue to be replenished through ongoing discoveries. This scenario needs to be considered because New Zealand is "gas prone" and our gas reserves are likely to be replenished as a consequence of new discoveries associated with the recent increase in petroleum exploration investment.
- 14. In an extreme case of this "gas prone" scenario New Zealand would have a significant increase in gas. Gas is a valuable internationally traded commodity and an export LNG sector would be a welcome boost to the New Zealand economy. In this large gas reserves scenario using gas domestically in power stations or existing gas intensive uses (eg at Methanex) should be open for the market to consider. It would be bizarre if because of the ban we exported LNG as fuel for base load power stations overseas but were not allowed to use it as power station fuel in New Zealand.
- 15. In a high gas reserves scenario and a ban New Zealand consumers will be paying more for their electricity because it would be sourced from higher cost renewables than allowing base-load gas plant to use that windfall gain in gas reserves.
- 16. Another factor affecting electricity prices is the risk that greater spot price volatility will occur with more wind supply and this will lift overall prices. As noted before, an example of the extreme spot prices related to wind unreliability as occurred on 4 February 2008 is set out in appendix 2.

Adverse impacts on the gas market

17. The preceding paragraphs discussed the scenario where New Zealand has a fortuitous increase in gas reserves. This section discusses the opposite scenario whereby gas reserves decline.
18. Petroleum explorers search for oil. Being gas prone, New Zealand isn't at the top of countries explorers consider. A ban on thermal power stations sends a strong signal to petroleum explorers that they may not have a market for any gas they might find. That makes the case for spending exploration monies in New Zealand that much more difficult. It is possible that the ban will dampen exploration sufficiently that the gas market will be seriously affected. This is a "gas market death spiral scenario."
19. If there is even a small probability that the ban on new thermal could lead to this "gas market death spiral scenario" then that should be sufficient for the Committee to advise the Minister that the proposed ban should be withdrawn as soon as possible.

Undermine investor confidence because of the arbitrary nature of the intervention

20. The ban is arbitrary because:
 - a) It discriminates against new power stations that emit greenhouse gases from thermal fuels but fails to consider emissions from new geothermal power stations. For example there have been reports that on a CO₂ emissions volume per kWh electricity generated basis, a planned geothermal power station at Ngawha has a higher carbon footprint than the proposed CCGT at Rodney.
 - b) It discriminates against new entrant thermal power stations in favour of incumbents. In particular the "old for new" provision in clause 62G (1) (e) that favours Genesis building a thermal power station at Rodney if it retires part of Huntly Power Station. If there were no ban Contact Energy could compete against Genesis Power by advancing plans for Otahuhu C. However because Contact Energy do not have thermal plant to retire, they cannot seek an exemption using clause 62G (1) (e) to build Otahuhu C.

With open competition and no ban, the most cost efficient of either Otahuhu C or the Rodney power station would be built first. Because of the ban and the discrimination in the "old for new" provision, even if Otahuhu C were lower cost, it wouldn't be built.
21. International investors will see the discriminatory and arbitrary nature of the ban as an unnecessary and unjustified intervention. The question will be asked "if the New Zealand Parliament legislates for this intervention; what other interventions might we see in the future?"
22. International investors will also be concerned about the growing propensity for unwarranted government intervention when no other country in the world has a 10 year ban.

The haste and lack of proper consideration of whether there was a policy problem to be solved and the proposed solution

23. The first time Cabinet considered options to limit new thermal generation was 31 August 2007. At that time the discussion was on possible ways to "limit" thermal investment for 5 years to match the expiry of the first Kyoto Protocol Commitment Period on 31 January 2012.
24. The ban was first made public as part of the NZES announcements on 11 October 2007. There was no prior public consultation on the ban before it was first announced. The Minister acknowledged the lack of consultation or consideration of the ban featuring in the New Zealand Energy Strategy in his Cabinet paper of 14 September 2007⁵:

"The New Zealand Energy Strategy (NZES), as currently drafted, makes no reference to the intervention options considered in this paper. Given the significant impact such interventions could have on the electricity system, it is desirable that any decisions to progress them be signalled in the NZES."

⁵ Refer Cabinet paper CAB (07) 479 "Options to Limit New Thermal Capacity: Further Advice"

25. It wasn't until the Bill was tabled in the House on 4 December 2007 that details of the ban became public. By that time what had been a 5 year "limit" linked to the expiry of the first Kyoto Protocol Commitment Period on 31 January 2012 had become a 10 year ban.
26. There is a strong perception that the ban was a last minute idea.
27. The policy problem, as stated by the Minister, is that even with an ETS there may be instances when new thermal power stations would be built and this could "jeopardise public confidence in the climate change policy."⁶ The Minister then goes on to say that the risk of any new base-load thermal power stations being built within the next decade is very small; nevertheless just in case he proposes to ban such investment. There are a number of problems with this view of the policy problem:
 - a) If climate change policy is centred on an ETS linked to a global international market that prices emissions, then it's hard to see why public confidence would be eroded if thermal power stations were built in New Zealand as long as the carbon price they paid was the same carbon price paid by any new thermal plant everywhere else in the world.
 - b) The Minister says modelling shows little risk of base load thermal being built in the next decade. MEUG agree that scenario is possible, but there are many other possible futures that may occur depending on a range of assumptions. MEUG understands that the modelling the Minister relied upon was not comprehensive. For example there was no detailed work estimating the combined generation and transmission net present value costs to the economy for a 20% renewables by 2025 scenario and all other feasible scenarios (eg low carbon price and high gas reserves) with and without a ban.
 - c) From a broader public policy design perspective, the idea of a ban is far from best practice. Banning something rather than using a pricing mechanism to realise efficient outcomes is reminiscent of command and control regimes.

The ban is a poor regulatory patch on a larger public policy design problem; and that is government setting renewable generation and carbon neutral targets. The longer term goal must be for New Zealand's ETS to align with a global carbon market where an international emission price is determined. In that case whether New Zealand achieves 90% renewables, or some percentage much lower or higher than 95% by 2025 is irrelevant because the optimal level of renewables and non-renewables in New Zealand and elsewhere will be decided in the context of that broader global emissions market.

Summary of recommendations

28. MEUG recommend the Finance and Expenditure Committee:
 - a) Note that the purpose of the ETS is to overcome a lack of greenhouse gas emissions being priced into the market and therefore a ban on new thermal is redundant;
 - b) Note that a ban on new thermal generation will:
 - i) Increase risk to security of supply;
 - ii) Forgo the opportunity for a lower electricity price path;
 - iii) Have adverse impacts on the gas market; and
 - iv) Undermine investor confidence in our regulatory framework.
 - c) Note the critical importance of keeping all generating options open given the range of uncertainties affecting supply and demand for electricity in the near term;
 - d) Urgently ask the Minister of Energy to retract Part 2 of the Bill; and
 - e) Note that MEUG has made a separate submission on the Emissions Trading Scheme proposed in the Bill.

⁶ Refer Regulatory Impact Statement, p54 of Bill

Appendix 1: List of MEUG members and Mission Statement

There are 20 member companies in MEUG plus two industry group members as listed below along with estimated annual load, onsite generation and peak demand.

| MEUG member ⁷ | Load GWh/y | Onsite generation GWh/y | Net Load GWh/y | Peak demand |
|--|---------------|-------------------------------|-------------------|----------------|
| Comalco New Zealand Limited | 5,000 | - | 5,000 | 580 MW |
| Norske Skog | 1,300 | 230 | 1,070 | 170 MW |
| Carter Holt Harvey Limited | 1,105 | 260 | 845 | 130 MW |
| New Zealand Steel Limited | 1,045 | 600 | 445 | 106 MW |
| Pan Pac Forest Products Limited | 550 | 66 | 550 | 78 MW |
| Fletcher Building Limited | 454 | - | 454 | |
| Winstone Pulp International Limited | 330 | - | 330 | 48 MW |
| The New Zealand Refining Co. Limited | 235 | - | 235 | |
| Telecom New Zealand Limited | 190 | - | 190 | |
| Oceana Gold Limited | 152 | - | 152 | 16.5 MW |
| Holcim (New Zealand) Limited | 70 | - | 70 | |
| Dongwha Patinna NZ Limited | 58 | - | 58 | 9 MW |
| Heinz Wattie's Limited | 56 | - | 56 | |
| Tegel Foods Limited | 56 | - | 56 | |
| Canterbury Meat Packers Limited | 41 | - | 41 | |
| Solid Energy New Zealand Limited | 29 | - | 29 | |
| Ravensdown Fertiliser Co-op | 28 | 22 | 6 | |
| Auckland International Airport Limited | 23 | - | 23 | 13 MVA |
| Lion Breweries | 23 | - | 23 | 6.5 MW |
| Methanex New Zealand Limited | 18 | - | 18 | |
| Business NZ | ... | | | |
| Wood Processors Association of NZ | ... | | | |
| | 10,763 | 1,178 | 9,585 | |
| NZ total demand ⁸ | 36,898 | | | |
| MEUG as percentage of total ⁹ | 29% | | | |

The Mission Statement for MEUG is:

"The members of the Major Electricity Users' Group are committed to ensuring the continuing availability of electricity services, at the lowest cost to the economy as a whole, consistent with sustainable development. Within this framework, the Group seeks to ensure competitive electricity prices and security of supply to the members of MEUG."

The 2007/08 external strategic objectives for MEUG are:

- 1) Improve competition;
- 2) Environmental policies that support the primary goal of economic growth;
- 3) Security of supply arrangements do not distort the market;
- 4) Most cost efficient transmission; and
- 5) Most cost efficient distribution.

⁷ Load, generation and peak load data may not be up to date because of changes in operations by individual companies since last surveyed by MEUG.

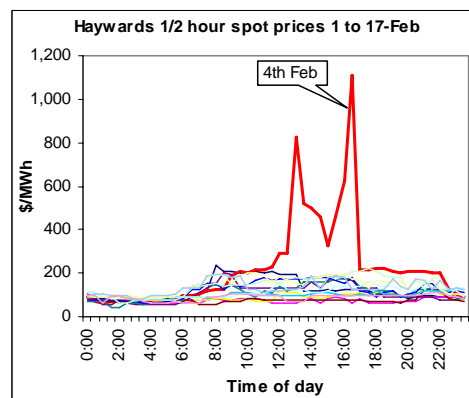
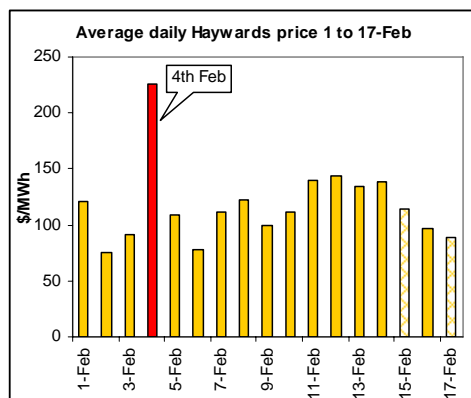
⁸ Refer Ministry of Economic Development, Energy Data File, January 2006, p139, demand for year ended 30 March 2005

⁹ Excluding demand by non-MEUG members of Business NZ and Wood Processors Association

Appendix 2: Security and high price event on 4 February 2008

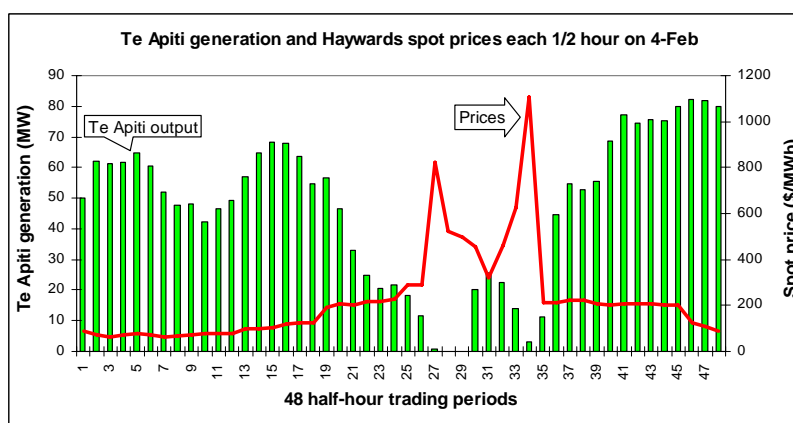
The average daily spot price at Haywards on 4 February was 22.6 c/kWh (red bar on graph on left hand side below). This was significantly higher than other days around that period. Spot prices over each half hour for each day 1 to 17 February are on right hand side graph. This shows the spike in prices on 4 February between the ½ hour trading period starting 1pm (TP 27) when prices were 82 c/kWh and the maximum spot price of \$1.11/kWh in the ½ hour finishing 5pm (TP 34).

To put these extreme spot prices into perspective, the average household retail tariff has an energy charge to cover retailers' wholesale purchases and retail margin of 13 c/kWh¹⁰.

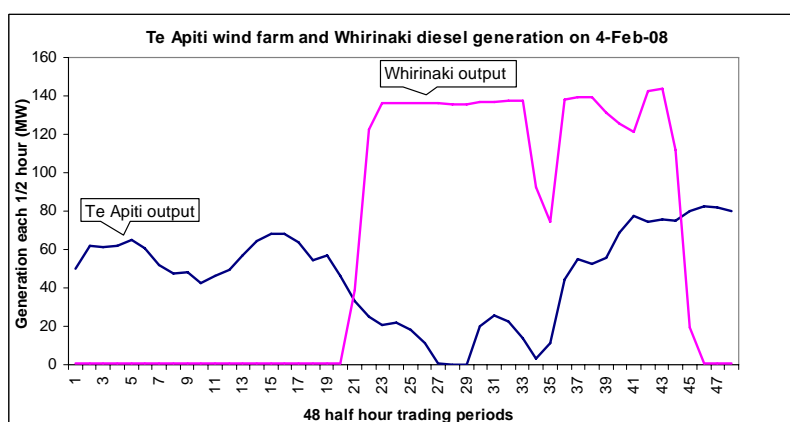


The graph to the right shows the correlation between the fall off in wind generation from Te Apiti wind farm and the very high spot prices on 4 February.

There were other contributing factors to the extreme prices, but lack of wind was the most important.



The graph to the right shows the correlation between the fall off in wind generation and the need to have supply from Whirinaki.



¹⁰ Refer MED retail price survey as at Nov-07: Average incumbent retail charge of 21.29 c/kWh less average line charge of 7.93 c/kWh, refer http://www.med.govt.nz/templates/MultipageDocumentTOC_32769.aspx