

Comments on the NZ Energy Strategy  
Low Emissions Power and Heat  
Energy Federation workshop, 6 December 2007

Low emissions power and heat relies on a combination of policies and measures

Key PAM's are

- Emissions trading – putting a price on greenhouse gas emissions from fossil fuels
- Aiming for 90% renewables in electricity generation system – by 2025, coupled with energy efficiency measures, which should reduce emissions to 1990 levels by then (supported by ban on new base-load thermal electricity generation and changes to the RMA to remove barriers to renewables)
- Research into CCS
- Encouraging distributed generation (or removing barriers)
- Encouraging more direct use of heat & fuel switching from coal to woody biomass for example...

### **90% Renewable Electricity – but at what cost?**

The government has set itself a bold target in the recently released NZ Energy strategy that 90% of electricity generation will be from renewable energy by 2025 and to shore this up the Minister, David Parker, has written to state owned generators instructing them to limit new base-load fossil fuel generation for the next 10 years. These measures are in addition to putting a price on carbon through the introduction of an emissions trading scheme, which will deliver a price advantage to renewable generation by making thermal generation more expensive and result in hundreds of millions of dollars in windfall gains to the renewable electricity generators.

So it is a belt and braces approach, but what will it do to security of supply and the price of electricity in future years?

If you take the time to read the submissions made by a wide range of industrial energy users on the NZ Energy Strategy, the top priorities were reliable supply of electricity at a reasonable price, with sustainability following closely behind. It can be safely assumed from past constraints on electricity supply, such as the Auckland CBD power blackouts in February 1998, that consumers (large and small) are highly dependent on security of supply – and lets face it, we all know that price matters.

So why would a government go to the extreme of being the only country in the world to limit all new base load fossil fuel and aim for 90% renewable in electricity generation when, with between 60-70% renewables in electricity

generation we are the 4<sup>th</sup> best in the world already? Answer; because we can (we are starting from a high base) and because it is good for reducing greenhouse gas emissions. But hang on a minute, the electricity sector contributes only about 8% of New Zealand's greenhouse gas emissions because we already have such a high percentage of renewables. Most countries are setting themselves targets to reach 20-30% renewables in their electricity supply and they positively love gas because it has lower greenhouse gas emissions than coal.

If the government thinks the 90% renewables target is going to be easy or low cost to achieve, maybe they should think again.

To reach the 90 per cent renewable electricity target by 2025 and to substantially cut emissions before then, the electricity industry must now deliver on its promises to make rapid progress with new renewable energy projects. Several large wind farm projects have been proposed yet there are still some problems obtaining resource consents and with the supply of turbines tight, the price is high and economics marginal. As an example, those that have analysed the numbers are asking questions about the commercial viability of the Contact Energy proposal for a wind farm in the Waikato. As wind sites go, it is a second tier site and a significant investment would need to be made in the local distribution network to get the power to consumers in Auckland.

A bigger issue lies ahead in the ability of the National Grid to be able to carry the increased and volatile output from several new wind farms proposed for the South Island and lower North Island.

In the meantime, and as the sector evolves, Huntly Power Station and other natural gas-fired plants will be the country's energy insurance policy for peak demand, dry years and major grid and generation outages. However to preserve that insurance option the plant must remain economic to run and to achieve this, thermal plants will need to be paid to sit there waiting to be the back-up. This is an additional cost to consumers, but without it the existing thermal plants cease to be commercially viable.

In addition, by consigning your thermal generation to standby mode you reduce efficiency. Standby thermal generation is only 36% efficient, while modern base load thermal generation is closer to 50% efficient. On cold winter nights when electricity demand is high and the wind is not blowing, New Zealand will require increasingly large amounts of inefficient standby generation, which will come at an additional cost. Conceivably we will need to over-build for additional transmission and thermal standby as the percentage of renewables gets higher and higher.

The other potential fish hook in the edict to limit new thermal generation to peaking plants is what signal does this send to the gas exploration sector in a country where we are more likely to find gas than oil? If gas exploration in New Zealand tails off because there will be no new gas fired electricity generation for 10 years then this will eventually lead to the need to import LNG to replace the indigenous gas. Anyone importing LNG would need to

sign a 15 year contract for the fuel at double the price of gas we are paying currently (\$6.50 gigajoule in NZ, \$11-12 gigajoule internationally), partly because we are such a small market by international standards. In addition, whoever wanted to import LNG would need to build a new port facility for landing the gas which might add a billion dollars to the cost, all leading to considerably higher prices for electricity.

Also, because 40% of gas is currently used in electricity generation its use in this way underpins the gas distribution network. The gas distribution network may not be commercially viable without a continuing role for gas in base load electricity generation.

While many organisations that made submissions to the NZ Energy Strategy thought a secure energy supply at reasonable cost should be the paramount considerations, given our already high percentage of renewable electricity generation; the government has ranked a 'low emissions energy system' to be the number one priority. There are many in the energy sector that think the balance has swung too far in favour of reducing greenhouse gas emissions from a sector that only contributes 8% to the NZ total, and that it could come at the expense of secure and affordable energy.

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