

## **Submission on the Electricity Price Review Report**

### **Why electricity prices have increased**

The Electricity Price Review has revealed that residential electricity prices have increased by about 80% above inflation since 1990. Wholesale prices have also increased. Why did this happen? We were promised that privatisation and the electricity market would reduce power prices.

An objective examination of the whole electricity industry and the effect of the reforms leads to some interesting conclusions.

### **Cross subsidies**

Before the reforms many Power Boards cross subsidised residential consumers by over-charging commercial and industrial consumers. The removal of these subsidies is one factor in the increased residential prices.

### **The market**

The Wholesale Market Electricity Development Group made a mistake when they rejected the recommended single buyer market model and chose a market that pays all generators the price bid by the most expensive generator selected to run. This would have been a good choice if New Zealand relied entirely on fossil fuel generation. New fossil fuel power stations produce cheaper power than older ones so, when power comes from fossil fuels, such a market encourages the construction of new and better stations.

In New Zealand, the cheapest generation comes from old, low cost, depreciated hydro stations. The choice of a fossil fuel market structure pays these stations the much higher price needed by the most expensive fossil fuel station. Hydro stations then rack up their asset values to camouflage the fact that they are making windfall profits.

The recommended single buyer market would have ensured that consumers would have continued to get low-cost electricity from the hydro stations that they had already paid for and that new stations that would give the lowest system costs in the long run were built.

The chosen market structure has led to wholesale prices increasing when they should have decreased to reflect the major reductions in operation and maintenance cost that followed on from privatisation.

### **Control of peak demand**

Before the electricity reforms all electric water heaters in New Zealand were remotely controlled by the lines companies to reduce system peak demand by more than 10% and saved consumers millions dollars. The reforms destroyed this world leading system. Most lines companies abandoned water heater control because the reforms did not allow them to fully recover of the costs of operating, maintaining and expanding their hot water control system.

As a result of abandoning hot water control, about 500 MW of new power stations and a \$960 million 400 kV line into Auckland were needed and millions more were spent on reinforcing transmission lines and distribution systems. All this to meet a peak demand that would not have existed with the single buyer market.

The review should have covered this.

### **Assets revalued**

The reforms also allowed generators, Transpower and lines companies to massively revalue their assets and use this increased value to justify charging consumers millions of dollars more for assets that consumers had largely paid for already. This is a major factor in the increased price of electricity. The review ignored it.

### **Traders and retailers**

The electricity market also brought us traders and retailers who, it can be argued, serve no useful purpose whatsoever. The single buyer market did not need them. After all we don't have them for water, sewage and other essential services.

In our market, traders often compete to get selected to generate. But when generation is in short supply competition is virtually non-existent and the price is "a trade-off between greed and guilt". (On several occasions in August/September wholesale prices spiked to more than 10 times the normal price for no apparent reason.) As two retiring CEOs pointed out, the way to make money in the New Zealand market is to keep the system on the edge of a shortage. With a single buyer market the system operator would have ensured that sufficient generating capacity was available from generators that would give a reliable supply at the lowest overall cost.

Retailers increase consumer costs by spending millions of dollars trying to steal consumers from each other and pretending to compete in selling a commodity that is identical for everyone.

### **Conclusion**

What is this leading to? It does not look good. Transpower has warned that the risk of serious shortages and high prices in a dry year is rapidly increasing and no one has plans to start building new power stations that would mitigate this risk.

Spot prices have been something like four times normal for the last three weeks. To compensate for this, hedge prices will probably increase by something like two cents /kWh next year. This is a major increase. (In the long run, hedge prices must always be greater than the average of spot prices because a hedge is an insurance policy for which you pay a premium.)

It seems that the power system is in a dicky state with a severe shortage of water, of gas and of coal. Yet only a few weeks ago, the government had a report that said everything in the garden was lovely. It isn't. If it doesn't rain soon, we could be faced with rotating black-outs.

The low level of thermal generation (see below) shows how little gas is being burnt. Wind output is close to zero and lake levels are still dropping. At times Whirinaki – our station of last resort – has been running on diesel.

What should be happening right now is a public call for savings.

It seems that the government is ignoring dry year risk because it is hellbent on “carbon zero”, shutting Huntly down and limiting gas supplies. Against all the evidence it seems to believe that exploiting wind and solar power will provide a reliable and economic supply. Never mind that they are much more expensive, require backup when the wind doesn't blow or the sun doesn't shine and don't make any useful contribution to meeting peak demand or providing dry year reserve.

The best and cheapest way of mitigating the risk of blackouts in dry years is to ensure that Huntly continues to provide dry year reserve with two or three generating sets and 1 million tons of coal available.

The government should be taking steps to make sure that we have an economical and reliable supply into the future. If it wants to reduce CO<sub>2</sub> – a gas that promotes plant growth and benefits our agricultural industries – it should contemplate the construction of a major (and very expensive) hydro pumped storage power station in the hills above Roxburgh that would solve the dry year problem. Only then can it ditch Huntly.

The New Zealand electricity market is a classic example of what happens when the politicians and the decision-makers do not understand power systems and how difficult it is to provide a reliable and economic supply. Choosing the wrong market model has cost the customer dearly and will continue to do so.

What all this really reveals is the failure of the market to provide a reliable and economic supply. We need a comprehensive review of all aspects of electricity supply by people independent of the current (and failed) market structure.

### **Recent events**

Electricity wholesale (spot market) prices have averaged 25c/kWh (four times the normal 7 cents) for the last three weeks because the the NZ power system is in a dicky state with severe shortages of water, gas, coal and generating plant. The generators failed to conserve hydro storage, the Pohokura offshore gas field shut down because of a technical problem, wind output has been low, not enough generators paid Genesis to hold sufficient coal on its stockpile and several key thermal generators are scheduled for overhaul.

Only a few weeks ago, the government received a report that said everything in the garden was lovely. It isn't. If it doesn't rain soon, we could be faced with rotating blackouts.

Most consumers won't take any action to reduce load because they are on a fixed price contract. But they can't escape their effect. Next year electricity contract prices will probably increase by something like two cents/kWh because, in the long run, contract prices must always be greater than the average of spot prices. (A contract is an insurance policy for which you pay a premium over the average spot price.) Two cents is a major increase and the public will (correctly) conclude that the generators are profiting from the shortage that they largely caused.

What should be happening right now is a public call for savings. But the politicians won't want to do this because it would leave egg on their faces. So they continue to pray for rain: If it does, they might emerge relatively unscathed, if it doesn't they will probably lose the next election.



Sincerely yours,

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Bryan Leyland is an engineer with 60 years experience in the power industry worldwide. He and his wife are majority owners of a small hydropower scheme that profits from the shortcomings of the market.

