

# Bryan Leyland: Why our unreliable electricity supply is so expensive - and what to do about it

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Sixty-five per cent of NZ's electricity is generated by efficient, low cost, hydropower schemes built many years ago - and that's the problem.

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## OPINION

Since the advent of the electricity market, power prices have increased faster than inflation. In 2017 they jumped by about 50 per cent and, last winter, they tripled. We were promised lower prices. Why didn't it happen?

The basic reason is that we have a market suitable for a system where generation is from fossil fuels and new stations are cheaper and more efficient than old stations. In New Zealand, 65 per cent of the electricity is generated by efficient, low cost, hydropower schemes built many years ago. The most expensive generator sets the price for

everyone else.

New generation is inevitably more expensive than the old hydro schemes, so new expensive power stations jack up the price paid to all generators. Low-cost generators make windfall profits and the hapless consumer pays far more than is needed to finance the new station.

The people who developed the market believed that "electricity was a commodity like any other" and, if the price went up, the demand would drop. The reality is that the value of electricity is much greater than its price, so most consumers don't make a substantial reduction in demand when prices are high. In the longer term, everyone pays more and energy-intensive industries close down and put people out of work.

The Government's carbon zero policies rely on a rapid and massive increase in wind generation. Over the last few weeks the price has crashed to less than 0.1c/kWh whenever the wind is blowing and then suddenly shot up to between 10c and 20c/kWh when the wind dropped. How many generators will be mad enough to continue investing in new wind farms given the price will crash every time the wind blows?

Electricity shortages and high prices this winter were caused by the market failing to provide sufficient dry year reserve. It would be better to view dry years as a "country risk" and treat it as a national problem, rather than hoping individual generators and retailers will carry the extra costs needed to manage it in the interests of New Zealand Inc.

The market has been unsuccessful in managing peak demand and destroyed our world-leading hot water control system. We do not reward consumers who manage their demand or generators who can provide reliable peak power.

In response to the high prices and shortages, the Electricity Authority reviewed competition in the wholesale market and concluded generators might be ripping off the consumers. Who would have guessed? It pointed out prices would have been lower if we had got rid of the aluminium smelter but didn't mention more gas or geothermal or hydropower would have had the same effect. It didn't consider changes to the market that would mitigate some of its problems nor did it contemplate switching to a market more suited to New Zealand conditions.

So what could be done to improve the existing market?

Overseas, most markets reward generators and others who can reliably contribute to meeting peak demand and incentivise consumers to manage demand. If we did the same, millions of dollars would be saved.

Keeping the lights on during a dry year is the critical factor in electricity supply. We need a market that rewards those who hold energy in reserve for dry years. This would minimise the risk of blackouts and excessively high prices during dry years.

We should also be looking for a market that suits New Zealand conditions. One option is the Single Buyer (SB) market recommended to the Wholesale Electricity Market Development Group in 1994 but rejected.

The prime objective of a SB is to provide a reliable and economic supply. Preconditions are it must be free from government interference and its recommendations must be independently reviewed.

A single buyer does not own or build power stations. Instead, it identifies when new generation will be needed and contracts for it through international competitive bidding. The successful generator receives an annual payment to

cover capital costs and profits and is paid for fuel and other operating costs at actual cost. By making the generator's profits independent of the amount generated, the SB is free to choose the combination of power stations that minimises the cost to the consumer. Peak demand would be properly costed, demand-side management would be incentivised and pumped storage would be valued on its merits.

Had an SB been chosen, we would still be paying for hydropower generation at its real cost of less than 3c/kWh and the country would be billions of dollars better off. If we converted to a SB right now, we would have price stability and an economic and reliable supply into the future.

We desperately need an independent and objective review, looking at all options and selecting what provides the most reliable and economic supply.

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126 comments