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Spare power plant not best answer

By John Blakeley:

This year the Government announced plans to build a 155MW oil-fired power station at Whirinaki in Hawke's Bay at a cost of \$150 million "to help provide increased certainty of electricity supply".

Alternative sites in the South Island had been explored but Whirinaki was chosen, although it is not ideally located, because it has a resource consent and can be operating by next winter.

Energy Minister Pete Hodgson said that normally the Government would prefer not to own reserve plant but was "taking advantage of an opportunity to secure an early and valuable increase in electricity supply security".

In taking this decision, the Government pre-empted decisions by the Electricity Commission, the membership of which it announced in September and which has responsibility for ensuring an ongoing secure electricity supply.

The decision to build the Whirinaki station was confirmed in late September. Generators and turbines are due on site before the end of the year, and commissioning and testing is scheduled for next April-May.

Whirinaki was widely condemned as a white elephant when it was announced, and the Government's "ring fenced" dry-year generation initiative has been rubbished as misguided and expensive.

This is because reserve stations are likely to be seldom used in the normal course of events because they will require a "trigger" spot price of electricity of around 20c a kilowatt hour, four times the usual spot price, before being brought into operation.

There are, in fact, much more cost-effective solutions to the dry-year electricity shortage problem, including more intelligent use of our existing generation assets.

The problem has been exacerbated by the breaking up of what was designed as an integrated national electricity generation and transmission system - first by splitting off and subsequently privatising Contact Energy and then by the split of the remainder into three state-owned enterprises (Meridian Energy, Genesis Power and Mighty River Power).

The dry-year shortage problem arises because there is only about eight weeks of storage capacity in our hydro lakes system between full and empty.

A dry-year situation, such as we experienced in 1992, 2001 and again this year, typically lasts for 12 to 14 weeks from the late summer into the early winter.

Controlled management of the electricity generation system is, therefore, required to ensure that the hydro lakes are near full by the late summer.

At the first sign of low inflows caused by dry conditions, thermal generation needs to be brought into operation to "firm up" the system - as it was originally designed to do.

If this procedure had been followed, there would have been no shortage problems in 2001 and this year, and the problems in 1992, which were more serious, could have been greatly diminished.

The Sustainable Energy Forum believes the building of several reserve generation stations, such as the one at Whirinaki, which will operate only very occasionally, is poor asset use and a gross waste of money and resources. These would be much better used to provide more generation capacity from renewable energy sources.

Reserve power stations are an ambulance at the bottom of the cliff; what we need is a fence at the top.

The critical problem with the operation of the electricity market is that thermal generators have to be sent "signals" about low inflows into the hydro lakes, and then have to respond. This is too slow, so if the low inflows continue, the spot price tends to suddenly increase to ridiculous figures of 50c to 70c a kWh - as occurred in 2001 and this year - before thermal generation is fully employed. This causes great alarm to industrial and commercial users.

The commercial drivers for the hydro-generators are also inappropriate. They will have observed that spot prices can increase enormously when the perception of risk of shortage exists.

Large profits can be made while the perception lasts, so there is no incentive for hydro generators to maintain storage conservatively during the critical period in the late summer and early autumn when, if the hydro lakes are near full, the spot price tends to remain low.

They will run down the storage on the basis that a dry year will probably not be happening, so that if a dry year does eventuate, so does a shortage.

Until these problems with the market are fully addressed, reserve generation stations such as Whirinaki will be only a palliative. They will not prevent severe electricity price spikes during times of dry weather, especially in the late summer and autumn, and the resultant alarm and lack of confidence in industrial investment.

Reserve generation stations are an expensive solution to a problem that can be better tackled in other ways.

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