

Measuring efficiency in hydro-dominated electricity markets

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Like Norway, New Zealand has an electricity system dominated by hydroelectric generation. Although this system (currently) has spare generation capacity, inflows to the reservoirs of this system are uncertain, and every winter New Zealand faces a possible energy shortage. The opportunity cost of stored water is then an important ingredient in setting the marginal cost of generation. This makes it difficult to monitor anti-competitive behaviour using historical prices. We describe some recent experiments with historical counterfactual models of the New Zealand market that are based on multistage stochastic programming. These models provide a measure of the degree of competition in the New Zealand wholesale electricity market.