

National Centre for Climate–Energy Solutions

finding the energy to move New Zealand forward

Data for the electricity market – and the public

NIWA delivers vital hydrological data to M-co, the company which provides services to the New Zealand wholesale electricity market.

The market is intensely interested in lake levels, lake inflows, and other generation data, factors which can have a significant effect on wholesale prices. On average, over 60% of the country's electricity comes from hydro, but lake storage volumes are not large by international standards, and inflows vary dramatically, so careful management of lake levels is crucial to the electricity supply.

Data from sites around New Zealand are transmitted to NIWA's Christchurch office, where they are processed and sent to M-co. We have done this every day since market based trading in electricity began on 1 October 1996.

The general public can view key hydro data for free at M-co's public site www.comitfree.co.nz. Market participants get more detailed information through the COMIT trading system.

NIWA's provision of operational data contributes to the efficient operation of the market. We are working towards providing more information and predictions to help the electricity system make increased use of renewables (e.g., wind), distributed generation, and better demand-side management.

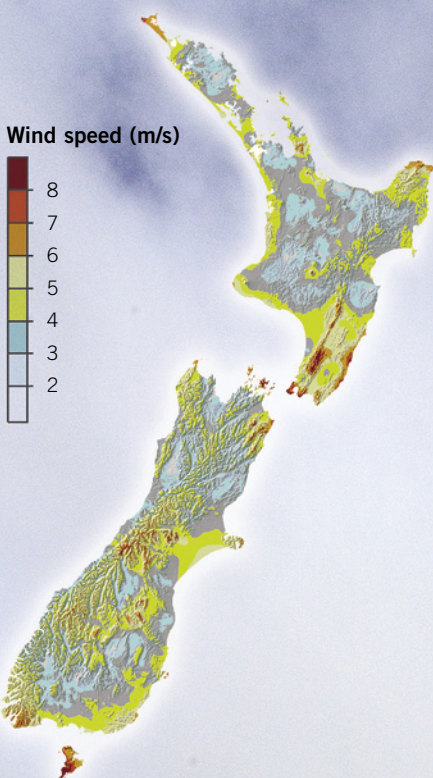
providing practical solutions to energy problems

- renewable energy
- energy efficiency
- greenhouse gas reductions
- reducing the environmental effects of energy use
- energy for remote communities

www.niwascience.co.nz/ncs



great services



How to find the best wind farm sites

The identification of good sites for wind energy generation is just one, important, example of how our detailed wind speed data are being used.

We provide clients with online access to hourly wind speed and direction, measured at 10 metres above the ground, for many sites around the country via NIWA's National Climate Database (www.cliflo.niwa.co.nz). We have also produced a gridded wind speed dataset covering the entire country. This information is detailed (at 500 m grid resolution) and accurate (to ± 1 m/s in most places).

The national coverage of the data allows comparisons of potential sites in different parts of the country. There are long-term data grids for every month, so an analyst can look at the month-to-month variations in wind speed at any site. This can be of particular importance for a project where wind energy is sought to offset the seasonality of hydropower generation.

Our data provide a cost effective way of creating a 'shortlist' of locations, before embarking on the more detailed investigations involving on-site measurements and modelling, which are essential for precise site selection.