

EMarket_{NZ}

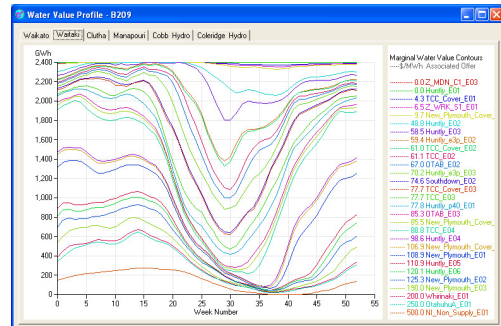
“The fastest, most accurate and most flexible simulation and modelling tool for the New Zealand market”

Advanced computational modelling, fast performance and powerful, easy to use features make *EMarket* the tool of choice for market modelling and simulation in New Zealand.

EMarket produces medium and long range forecasts by simulating the behaviour of the electricity market - an essential tool for:

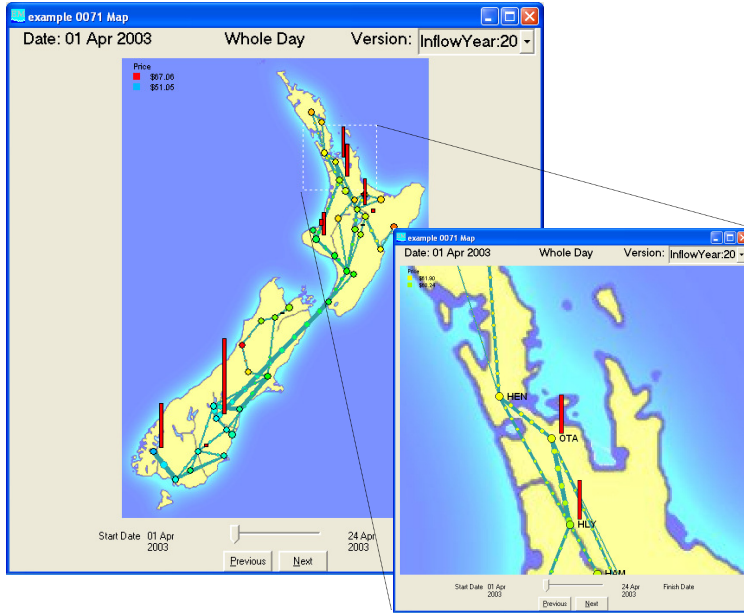
- risk evaluation
- grid planning
- dry-year security assessment
- valuing generation
- generation strategy development
- strategic planning

EMarket's unique combination of speed and accuracy, tested and refined through many years of use in New Zealand, gives the analyst the power to rapidly develop and refine forecast scenarios. These can then be used to explore variations of interest. All major aspects of scenario modelling can be controlled through the on-screen controls to produce finely detailed results.



*EMarket*_{NZ} Features

- Offering approaches for thermal generators based on current or potential commercial strategies
- Offers set up based on user's requirements, e.g. short or long run marginal costs
- Seasonal water storage management modelling using the same class of reservoir optimisation algorithms used by hydro generators
- Security of supply in dry years
- River chain modelling for large hydro schemes
- Short term river chain optimisation downstream of seasonal reservoirs
- Dispatch and pricing algorithms for the New Zealand nodal market including: marginal losses, line constraints, equation constraints and instantaneous reserves
- Grid model including AC lines and HVDC link
- Simulate by half hour, four hour, day-night, four load blocks per week, week, or mix modes
- Multi-year runs
- Runs a fully converged simulation for one year with 74 inflow scenarios in one hour on a 3 GHz PC in day-night mode (730 simulated periods per inflow year)
- Generic modelling and market optimisation of the smaller hydro schemes
- *EMarket* "Schedule" - a powerful scripting language allowing the user to program changes or events during forecast production
- Customisable report and output data generator (all forecast data can be output to Microsoft Excel)
- Optimisation of company gross profit
- Monte Carlo techniques to forecast non-market data (e.g. foreign exchange, fuels costs)
- Flexible graphical user interface providing run batching, data management and viewing functions
- Forecast run library permitting subsequent scenario analysis without the need for re-forecasting



The *EMarket_{NZ}* Map

The *EMarket* map is a powerful graphical interface for viewing modelled data. It allows easy movement around the Grid and to zoom in and out for more or less detail.

All nodes and lines included in a forecast scenario appear in the map. The presence of significant line constraints are highlighted and the direction of line flows are animated.

Easy to run variations on offer scenarios, e.g. high and low sensitivities on demand, can be quickly assessed on the map. Colour coding assists the trader determine the status of grid components at a glance.

Main Outputs

- Offer Prices
- Offer quantities
- Nodal spot prices
- Demand
- Power flows
- Line constraints
- Reservoir & system storage
- Reservoir & system spillage
- Reservoir & system release
- Generation
- Revenues and profits
- User-defined (including Monte Carlo generated outputs)

Model Components

- Full or condensed grid (configurable by adding or removing lines and nodes)
- Reserves and reserve classes
- Demand profiles
- Demand regions
- Historical inflows
- Hydro and thermal generators and generator groups
- Generation companies including:
 - Generator ownership
 - Nodal retail ownership
 - Hedging commitments
- User defined variables

Market Ready

EMarket_{NZ} is tailored for New Zealand's mixed hydro-thermal market. Energy Link can provide a complete set of market, grid and hydro data, plus training and support.

Technical Requirements

Minimum specifications for running *EMarket* are:

- Pentium 4 1 GHz or greater
- 256 MB RAM or greater
- Windows NT4.0 or later
- 10 GB disk space

EMarket_{NZ} is designed for electricity market & transmission analysts who are dissatisfied with models which are slow and do not accurately reflect the many important physical and commercial details of the New Zealand setting.

EMarket_{NZ} is a unique simulation tool optimised for New Zealand. It provides the most accurate view of the interaction between the commercial and technical factors impacting on the spot market including demand, water management, thermal generation, losses, reserves and the details and capacity of the transmission grid.

Unlike other generic market models, *EMarket_{NZ}* was designed and developed from the ground up to be fast, accurate and flexible for modelling the New Zealand electricity supply system and its spot market. We have developed a fully featured modelling and simulation tool for New Zealand which includes ready access to the local developers and a local centre of *EMarket_{NZ}* modelling excellence.



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