

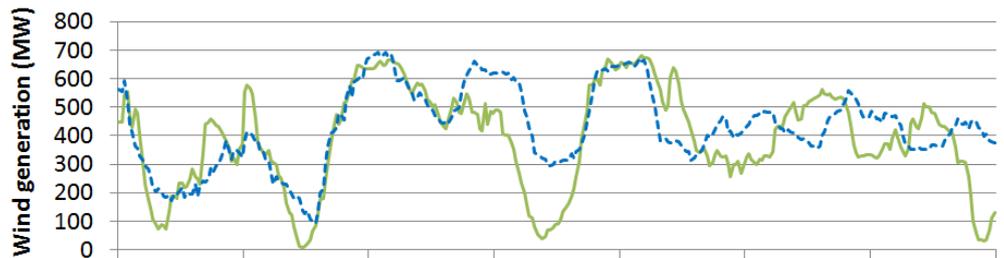
WIND INSIGHT

ALL-IN-ONE WIND POWER FORECASTING SYSTEM

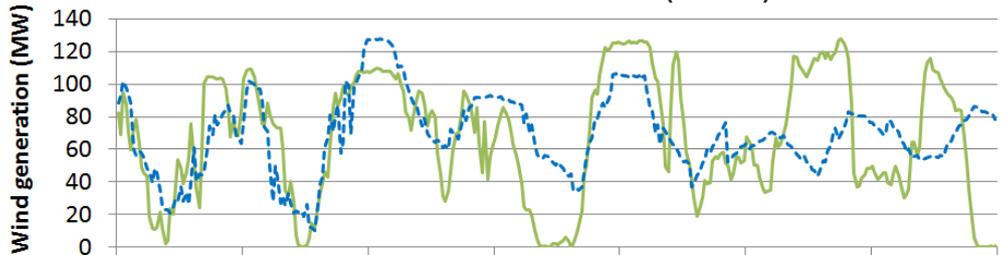
- Single point forecasts of expected generation from 5 minutes to 7 days ahead
- Probability distribution forecasts, such as 10% and 90% POE
- Likelihood forecasts of large rapid change (ramp) events
- 2-D and 3-D animations of wind power forecast fields

POINT FORECASTS – EXAMPLE 7-DAY FORECAST

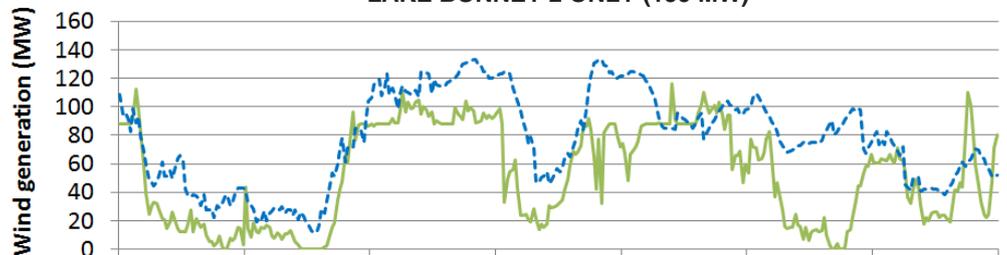
TOTAL SEMI-SCHEDULED WIND IN SOUTH AUSTRALIA (817 MW INSTALLED)



NORTH BROWN HILL ONLY (132 MW)



LAKE BONNEY 2 ONLY (159 MW)



1/01/2014 2/01/2014 3/01/2014 4/01/2014 5/01/2014 6/01/2014 7/01/2014

— Actual generation - - - Forecast generation

ALL TYPES OF FORECASTS

- Single point forecasts of expected generation
- Probability distribution forecasts
- Likelihood forecasts of large rapid change events
- 2-D and 3-D animations of the wind power forecast fields

CLIENTS

- Wind generators for their forecasting requirements and optimising O&M schedules
- Power system operators
- Electricity market operators
- Electricity retailers
- Market exposed loads

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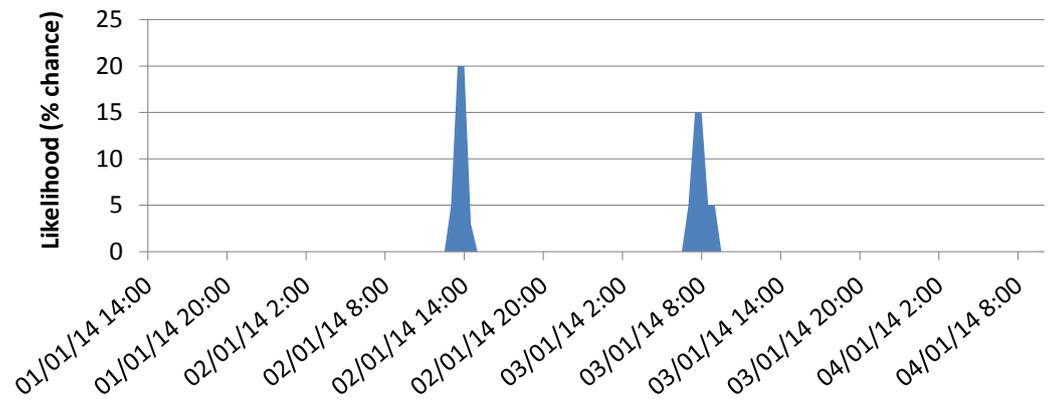
**ROAM
CONSULTING**
 ENERGY MODELLING EXPERTISE



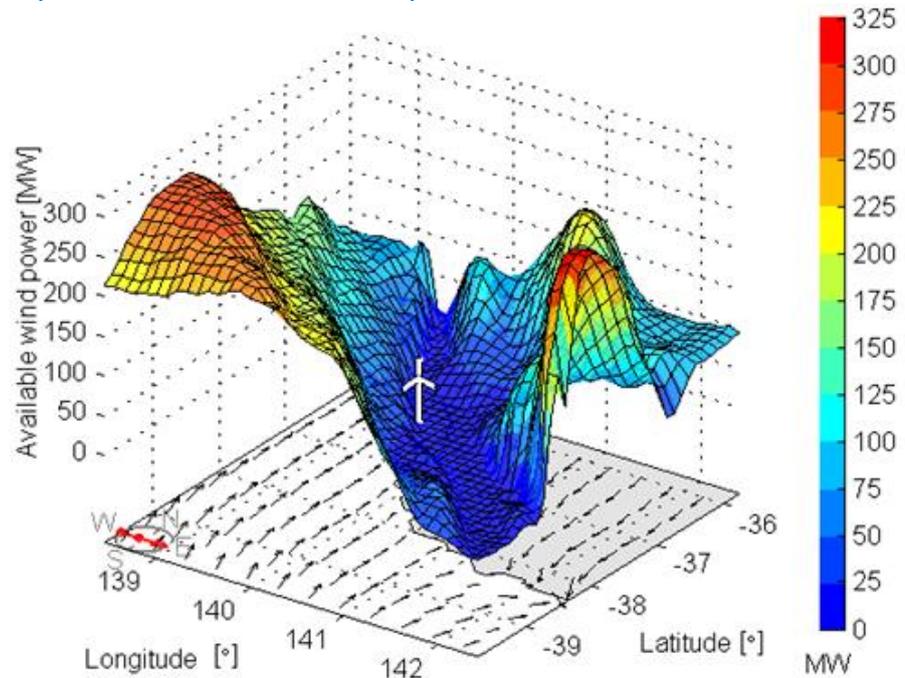
LARGE RAPID CHANGE FORECASTS

To manage large disturbances in the power system you need the best forewarning you can get. Wind Insight provides you the best comprehension of the likely trajectories of wind generation with likelihoods of rapid change events and animated wind power fields.

Example likelihood of rapid change event occurring



Snapshot of animated wind power field forecast



indicates speed and direction of wind features
(see http://roamconsulting.com.au/wind_insight.php for more information)

TAKES ALL POSSIBLE INFORMATION INTO ACCOUNT

- Wind speed and direction forecasts from multiple weather models
- Multiple grid points from the weather models
- Real-time observations of wind speed, direction, power and turbine availability for each individual turbine
- Diurnal weather patterns
- Real-time observations from nearby "up-wind" wind farms

BASED ON FIVE DEDICATED YEARS OF RESEARCH

- Methodology and algorithms developed over many years of dedicated research by ROAM's key developer of Wind Insight
- Peer reviewed techniques published in several journal papers

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