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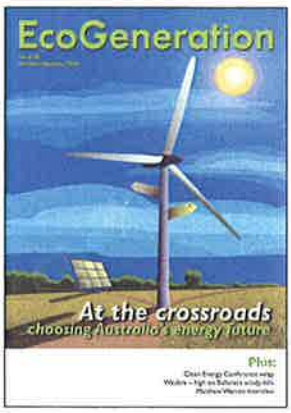

Cover image highlights the industry's call for a commitment to clean energy to ensure future supply and abate the effects of climate change.

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Wind forecasting lifts off

Accurate wind energy forecasting has become an important priority as Australia seeks to increase its renewable energy sources.

AUSTRALIAN GOVERNMENT POLICIES such as the 20 per cent Renewable Energy Target and the Carbon Pollution Reduction Scheme are likely to drive further investment in and development of wind energy technology as a significant source of low emission generation contributing to the National Electricity Market (NEM).

In the NEM, every five minutes, the generators involved in the market are given generation targets so that supply and demand is balanced. As an intermittent source of energy, wind's output is variable and it cannot meet a dispatch target in the same way as conventional generators.

The ability to accurately forecast the level of wind energy output for each five minute dispatch interval is important for NEMMCO, as the electricity market operator, in efficiently and reliably managing the NEM. This is particularly vital given the increasing amount of wind energy in the NEM in recent years.

As a result of discussions between the Australian Government, NEMMCO and industry regarding growth in wind generation in the NEM and its impact on NEM forecasting and market dispatch processes, in 2006 the Australian Government — through its Wind Energy Forecasting Capability Initiative — funded NEMMCO to progress the Australian Wind Energy Forecasting System (AWEFS) project.

Following 18 months of design, development and acceptance testing, AWEFS was implemented by NEMMCO in November 2008 and has been integrated within its operational systems.

Developed by the European-based ANEMOS Consortium, a collective of six partners co-ordinated by French company Armines and German firm Overspeed, AWEFS produces energy forecasts from a number of inputs. These include real-time supervisory control and data acquisition (SCADA) measurements, standing (or Energy Conversion Model) data from wind farms, weather forecasts, and physical considerations such as terrain information and turbine maintenance at each wind farm.

Forecasts are generated by AWEFS for wind farms with a registered generation capacity of more than 30 megawatts and can be accessed by registered NEM participants through interfaces to NEMMCO.

The Market Management System (MMS) web portal also enables wind farm owners and operators to submit up to date information on turbine availability. This data being directly entered into AWEFS by the wind farm operators ensures greater accuracy in calculating projected outputs. Forecasts are produced in line with existing NEM timeframes showing generation and supply capacity, which include dispatch (five minutes ahead), ST PASA (Short Term Projected Assessment of System Adequacy based on a seven day outlook) and MT PASA (Medium Term Projected Assessment of System Adequacy based on a two year outlook).

To facilitate industry input, NEMMCO has established the Wind Energy Technical Reference Group (WETRG) to advise on matters relating to the AWEFS project's ongoing technical delivery. WETRG is made up of representatives from the wind farm sector, transmission network services providers, researchers and the Australian Government as major users or those with interests in AWEFS.

By providing better forecasts, AWEFS aims to improve the overall efficiency of NEM dispatch and pricing while at the same time strengthening network stability and security management. Planning is in progress to enhance the system over time, improving the quality and extent of forecasting by further adapting the system for Australian conditions and applying it to other renewable types such as solar and wave energy.

NEMMCO CEO Brian Spalding said the new system was important in maintaining a highly reliable national market and power grid.

"Government, industry and NEMMCO have combined using international specialist support to deliver this important outcome, which will greatly enhance the national market for some time to come."

More information:NEMMCO website www.nemmco.com.au/psplanning/awefs.html

Department of Resources, Energy and Tourism (DRET) website www.ret.gov.au/energy