



UNSW
SYDNEY



Energy Meteorology – Weather Forecasting and Resource Assessment

Using the connection between energy and meteorology to develop models that lead to the promotion of cost-effective and sustainable weather and climate risk-management strategies for the energy industry.

Competitive advantage

- Cutting-edge short-term forecasting for different renewable technologies and hybrid renewable systems, using techniques ranging from running and evaluating Numerical Weather Prediction Models (NWP) to extraction of irradiance from satellite imagery
- Experience in producing weather and power forecasts at timescales that align line with the operation of the National Electricity Market
- Expertise at integrating new forecasting models with the latest insights on the impacts on output from grid events to allow charge/discharge regimes to be developed for energy storage in hybrid systems

Impact

- Providing new understanding of the relationship between the weather and energy generation will lead to the development of novel approaches to energy storage control in hybrid renewable energy systems and the development of cost-effective strategies for siting and managing both distributed and large-scale renewable energy systems

Successful applications

- Optimisation of battery size and type for hybrid systems based on weather forecasting
- Identifying the key impacts of atmospheric aerosols such as dust on the output of solar technologies
- Improving weather forecasts for the wind energy sector
- Identifying the impact climate change will have on new wind farm developments

Capabilities and facilities

- Dedicated computation laboratories for advanced simulation modelling and associated facilities for validation studies
- Weather monitoring equipment for validation of modelling results

Our partners

- CSIRO
- Bureau of Meteorology
- NREL
- AEMO
- IMC

More Information

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