

Research into wind technologies to analyse the impact wind energy has on electricity markets, develop models, and assess the technical impacts of integrating it into the grid.

Competitive advantage

- World-leading improvements in the understanding the impacts of different loads, generation sources and energy storage on system security
- Expertise in the optimal planning of offshore wind farm electrical layout
 Innovative optimal dispatching tool for wind energy integration through
- multi-terminal VSC-HVDC grids
 Experience in grid planning and co-optimisation of electricity and gas networks
- Expertise in industrial standard software and in-house tools

Impact

- The creation of advanced planning and operating tools to ensure a stable and reliable power supply, and defer capital investment
- Large-scale wind farms with energy storage will allow increased use of renewable generation within the network

Successful applications

- Future Grid project aiming to develop the nation's capacity to plan and design the most efficient, low-emission electricity grid for Australia
- Hongkong Electric Company's off-shore wind farm design project that covers wind resource modelling, prediction, grid impact studies, dispatch and energy storage options

Capabilities and facilities

- Cross-platform modelling tools for grid studies of the impacts of loads, generation sources and energy storage on system security
- Grid planning and operations incorporating wind, solar and storage
- Hardware-in-the-Loop testing bed for energy storage systems with programmable grid simulations on real time digital simulators (RTDS)

More Information

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