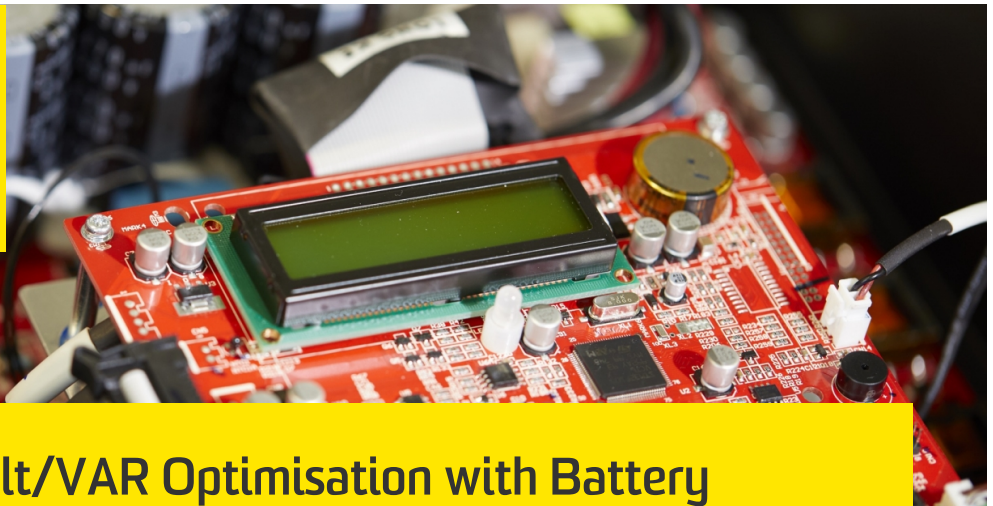




**UNSW**  
SYDNEY



## Multi-Timescale Volt/VAR Optimisation with Battery Energy Storage in Smart Distribution Grids

**In an advanced distribution management system, multi-timescale Volt/VAR functionality enhances the efficiency, sustainability, stability and security of a grid, and its impact can be further improved with fast-acting smart inverters and battery energy storage systems.**

### Competitive advantage

- Providing predictive control where there are forecasting uncertainties. Slow and fast timescale controls are coordinated using two-stage stochastic programming
- Expertise in this multi-dimensional optimisation area

### Impact

- The rapid increase in the integration of intermittent renewable energy sources into existing distribution grids has brought technical challenges such as voltage rise events. The multi-timescale operational approach increases the hosting capacity of distribution grids for intermittent renewable energy sources by coordinating the timescales for corrective action across multiple systems, and improves the steady-state stability of distribution grids.

### Successful outcomes

- Proven advantages on simulated distribution feeders including IEEE benchmarks

### Capabilities and facilities

- Tools, software and real-time simulation capability

### Our partners

- A. W. Tyree Foundation

### More Information

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