



**UNSW**  
SYDNEY



## Microgrid Modelling and Simulation

**The expertise to assess the development of microgrids across a range of timescales from the long-term, lifetime cost of energy down to the short intervals required for protection and control systems, where events can occur—and need to be acted on—within milliseconds.**

### Competitive advantage

- At the forefront of research into, and the development of, microgrids using a wide-range of inverter control systems, conventional rotational generation, and energy storage
- A wide array of modelling capabilities, including conventional RMS, EMTP and transient system modelling
- The most powerful digital simulation laboratory in Australia. UNSW's 18-rack real-time simulator is capable of modelling large- and small-scale microgrids at the finest timescales required for protection and high-speed control systems

### Impact

- The ability to assess microgrid system behaviour in real time
- Reducing the uncertainty and risk in projects through digital simulation

### Successful outcomes

- When the Asian Development Bank conducted a project for LECO, the electrical distribution operator in Colombo, Sri Lanka, it used UNSW microgrid simulation and modelling techniques.

### Capabilities and facilities

- A state-of-the-art inverter and microgrid test platform
- An 18-rack RTDS real-time simulator
- An OPAL-RT system for high-speed power electronics simulation in real time

### Our partners

- ARENA
- Electranet
- Tasnetworks
- AEMO
- Empower
- Sungrow

### More Information

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