



UNSW
SYDNEY



Grid-Connect Inverter Testing and Assessment

A comprehensive test set-up that can accommodate inverter capacities between 1kVA and 50kVA has been developed. It allows inverters to be tested to the edge of their performance envelope. The testing system can also be utilised for coarse and fine tuning of inverter control parameters.

Competitive advantage

- Best-in-class Inverter testing system, operated by staff with wide experience of testing a variety of inverter types, makes and models
- Specialist knowledge and experience allows the identification of inverter vulnerability to grid disturbances which may cause unexpected behaviour in inverter makes and models. This is particularly important for Virtual Power Plant solutions and microgrid providers.

Impact

- The testing allows for rapid determination of grid-connected inverter behaviour and control, and the fast assessment of vulnerabilities to a range of typical grid disturbances.

Successful outcomes

- Over 15 makes and models of inverter tested for an ARENA funded project into the effect of distributed energy resources on the distribution grid
- Collaborations with AEMO and network operators on the impact of distributed energy resources on the network

Capabilities and facilities

- A state-of-the-art inverter and microgrid test platform that can be used to experimentally verify inverter control techniques including grid simulators, load emulation, feeder impedances, rotational generation and rotational loads.
- Fine-tuning of critical subsystems such as synchronising algorithms (PLL, FPLL, SOGI, Virtual Synchronous Generators), current mode control, voltage-source forming and fault characteristics.

Our partners

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

More Information

Professor John Fletcher

School of Electrical Engineering and Telecommunications

T: +61 (0) 2 9385 6007

E: john.fletcher@unsw.edu.au

UNSW Knowledge Exchange

knowledge.exchange@unsw.edu.au

www.capabilities.unsw.edu.au

+61(2) 9385 5008