



UQ Renewable Energy Lab

Research facilities to lead the technological advancements in the realm of renewables-dominated energy transitions.

The Renewable Energy Laboratory within the School of Information Technology and Electrical Engineering of UQ, was developed with the funding from AGL Solar Flagship Education Infrastructure Fund.

The UQ Renewable Energy Laboratory provides UQ researchers with a unique powerful platform for innovative research in the area of power systems

dynamics, state estimation, fault analysis, microgrid operations under grid-connected and islanded mode, microgrid protection, PV inverters' response analysis under voltage and/or frequency disturbances, load modelling, transactive energy, peer-to-peer energy trading, energy storage, PV impacts on LV networks, synchrophasor measurements, etc.



Research & Teaching

The core research of the UQ Renewable Energy Laboratory spans power and energy systems with special focus on the impact, challenges and solutions for the integration and operation of renewables into electricity grid.

The lab is equipped with the state-of-the-art renewable energy research facilities that offer a unique platform for students to acquire knowledge on rapidly evolving renewables-dominated power system challenges and their potential solutions through real-time software- and hardware-in-loop experimental setup.

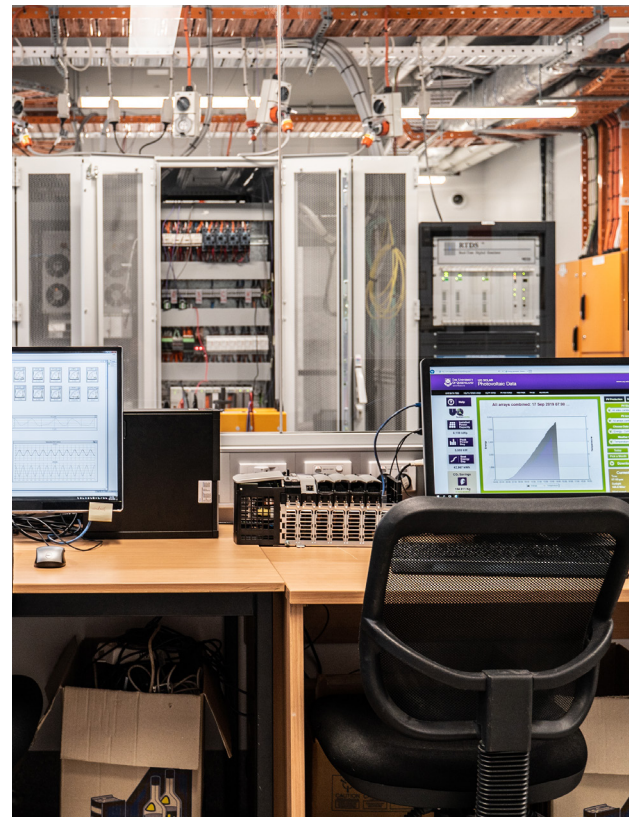
Facilities

Software

- PSCAD, RSCAD
- PSS/E
- PowerFactory
- MATLAB
- PLCs – Factory Talk (Rockwell Automation), Siemens TIA Portal software
- BatSim, TopControl
- TerraSaS Software for PV Emulators
- Historian Wonderware

Hardware Facilities

- RTDS (1 NovaCor with 5 cores and 1 rack with 6 PB5 cards)
- GT I/O cards
- Network interface cards: GTNET, GTWIF, IRC
- PMUs
- 6 Power Amplifiers and 6 Voltage Amplifiers
- 2 Solar PV Emulators
- 5 PV inverters and 1 Smart Hybrid Inverter
- Programmable DC supply
- Battery Energy Storage, Battery Inverter, BMS.
- Battery Simulator (GSS)
- Programmable Load and 3-phase Resistive Load
- Siemens Protection Relays
- PLCs: Allen-Bradley and Siemens
- LAN switches
- Infrastructure for remotely control the hardware using MODBUS, TCP/IP, serial communication protocols.
- Imperix Reconfigurable Power Converter Platform
- SYNDEM Smart Grid Research and Education Kit
- Siemens S120 HIL System



Contact

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