



Case Study

Tropical Energy Solutions

Off-Grid Power System

James Cook University, Daintree Rainforest Observatory (JCU DRO)

71kWp Solar Capacity – 280kWh Battery Bank

Our Company

Tropical Energy Solutions provides turnkey solutions for grid-connected, hybrid and off-grid renewable energy power generation, energy efficiency and demand management applications.

We identify, promote and implement solutions that are clean, reliable and economically viable, while focussing on delivering products and services that suit tropical environments.

Site Description

JCU's DRO is one of only five long-term ecological monitoring sites in Australia. It is situated in The World Heritage listed Daintree rainforest; an area of significant biodiversity and Australia's largest area of lowland rainforest.

The area is known as one of the most important natural laboratories in the world for understanding the impacts of global environmental change. The incredible scenery and significant biodiversity draws tourists from around the world.

The site has recently been developed into a broad-spectrum, rainforest-focused research station which complements the internationally recognised reef-focused JCU Orpheus Island Research Station.

Off-Grid Power System

Essential to the sites development was the provision for an off-grid renewable energy power system. The aim was to reduce the sites

dependence on diesel fuel consumption while promoting clean sustainable technology.

The sites electrical loads varied, with amenities including accommodation (up to 50 staff/researches), offices, showers, ablution blocks kitchens and classrooms, as well as two on-site laboratories, one open-air teaching laboratory, and one traditional air-conditioned laboratory equipped to support the basic needs of most rainforest research.

Tropical Energy Solutions designed and installed an off-grid power system which includes 71kWp of PV solar modules with 280kWh battery storage capacity.

The remote location and sensitive environmental footprint presented many logistical challenges, which included the safe installation of batteries, equalling a total of 8 tonnes.

Scheduling site access, travel and work for a multi disciplinary team during cyclone season, drew on our extensive experience. Despite the site being evacuated twice due to cyclone warnings we were able to complete the project on time and on budget.



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