THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Property & Facilities Division
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Warwick Solar Farm project

Project snap shot – November 2019 to January 2020

UQ is committed to sustainability leadership, and will be the first university in the world to generate 100 per cent of its electricity from its own renewable energy asset.

The UQ Warwick Solar Farm will enable UQ to be 100% renewable by 2020. This means the solar farm will generate as much or more electricity each year than the University needs.

The project will provide the groundwork for a wide range of new teaching, research and engagement opportunities, in addition to its environmental and financial benefits.

Lendlease was appointed to design and construct the 154 hectare solar farm which is located at Sladevale, about 5km north of the Warwick town centre.

Lendlease have been on site since mid-February 2019 and construction work began in April 2019. Completion is expected in early 2020.

Read more about this project in:

- Project information
- General and technical information is available on the Sustainability website.
- Newsletters & Project Documents
- 18 April 2019 UQ News article – Solar start energises Darling Downs economy
- 30 November 2018 UQ News article - UQ makes 25-year solar farm commitment to Southern Downs
- 7 June 2018 UQ News article - UQ to set world standard with 100 per cent renewable energy

Concept image – Warwick Solar Farm

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Aerial shot of the site - January 2020

The site is finally greening up after the first significant rain fell in the general area in more than 6 months.

November 2019

Final installation of the overhead lines

- Approximately 3.5km of new overhead lines (OHL) were installed to connect the Solar Farm to the local area grid.
- The 33,000V line voltage also provides communication between Ergon Energy and the Solar Farm.

UQ Visitor Centre

- The Centre is purpose designed and built to accommodate UQ's commitment to public and academic engagement as part of the solar farm initiative.
- The Centre will provide facilities for the public to learn about utility solar, energy market participation and also research related to solar and adjacent technologies.

Green Gown Award winner

- The University of Queensland has won a coveted Australasian Green Gown Award for its commitment to sustainability through the Warwick Solar Farm project in the inaugural 2030 Climate Action category.

The Energy team jumping for joy at winning the Green Gown award (l-r) – Danielle Esterhuysen (Program Manager Energy Management), Andrew Wilson (Senior Manager Energy & Sustainability) and Sarah Haskmann (Energy Management Program Officer).

ATV work horse

- This utility vehicle was specially procured to be able to service the large site that has and off-road ground conditions and limited space between PV rows, especially when the panels are laying flat.
- It has only been used on the Solar Farm site and has already clocked 680km since being deployed 11months ago.

UQ Control room landing

UQ Control room landing

Bushfire air quality

- The greater Warwick area (Southern Downs) was impacted by bushfires in numerous locations from September 2019 to January 2020. Thick smoke impacted the local area for many months.

Bushfire air quality

Bushfire air quality

Cunningham's Gap bush fire

- The Cunningham's Gap was severely impacted by bushfires, even burning the rainforest sections. 'The Gap' was closed for several weeks due to road damage and falling trees. Most damage was present on the Mt Mitchel side

Cunningham's Gap bush fire

December 2019

Grid connection underground electrical work

- Main connection to the overhead lines which will transport electricity to the grid at the Warwick substation using 33,000V cable voltages.

Grid connection underground electrical work

UQ Visitor Centre - progress

UQ Visitor Centre - progress

Ergon Switch Room Landing

Freestone Valley fire (15km from site)

Site Christmas celebration

January 2020

With most of the field based Solar Farm built, activity is now concentrated at the Solar Farm switchyard and ultimately towards energisation.

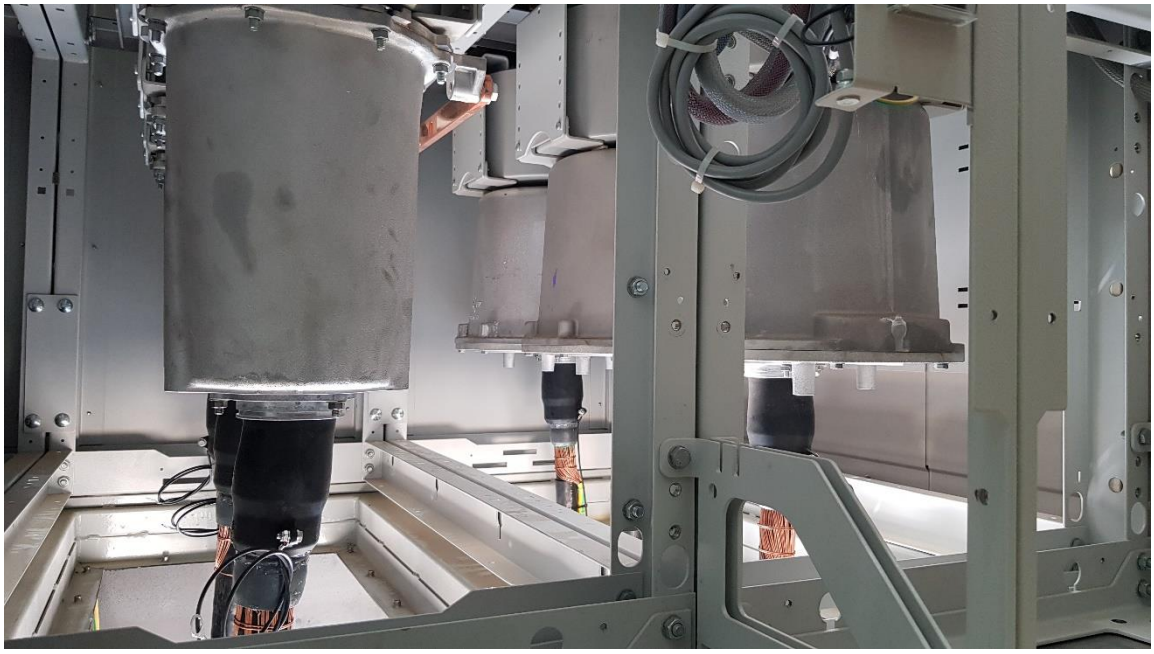
The switchyard area facilitates the transfer of electricity from the Solar Farm to the local grid, and the control and operation of the solar farm itself. This consists of, but not limited to:

- UQ Control Room – houses solar farm Power Plant Controllers (PPCs), communication interfaces, main circuit breakers, metering and SCADA servers;
- Harmonic Filters – to help improve the power quality exported to the grid (inverters and other equipment upset power quality during their operation);
- Backup generator – to provide back-up power in order to control the solar farm should there be a grid outage;
- Auxiliary transformers – provide low voltage power for regular equipment; and
- Ergon Energy Switchroom – Ergon Energy's version of the UQ control room, allows them to manage the grid export in co-ordination with all other local Ergon grid assets.

Partial Discharge testing

- High voltage pre-testing of Switchroom equipment to ensure proper operation.
- PD testing: High voltage is injected into the equipment (in this case switchgear) and monitored for any errant behaviour that might indicate compromised insulation within the equipment.

Switchyard fencing



HV Power cable terminations

- The 33,000V cables from the Solar Farm field enter (terminate) the UQ Control Room switchgear (circuit breakers.
- Specialised HV electrical work with very precise equipment and processes to terminate cables to ensure prevention of failure or faults at high voltage.

Ergon Switchroom (left) and UQ Control Room (right) now in place.

AUX transformer landings.