

Warwick Solar Farm

Supporting The University of Queensland to offset its energy needs

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 Warwick Solar Farm.

With the addition of 200,000 solar panels at Warwick, the University now has about 252,000 solar panels with 70.3 megawatts of capacity. UQ will commence power generation in the first half of 2020.

Building on UQ's existing strengths in the renewables field, the project provides the groundwork for a wide range of new teaching, research and engagement opportunities, in addition to its environmental and financial benefits.

The site

The solar farm site is located at Sladevale, around 5km north of the Warwick town centre in the Southern Downs region of Queensland. Importantly for UQ's teaching, research and engagement objectives, it is also less than two hours drive from UQ's St Lucia campus.

The site meets a range of essential technical criteria such as proximity to a suitable substation, topography, aspect, geotechnical conditions and limited remnant vegetation.

Project size

Upon completion, the solar farm will total around 64 MWac and 78 MWdc. The project site is around 154 hectares, of which just less than 30 per cent will be covered by solar modules. The balance will be made up of the spacing between each row of panels, 16 inverter stations, access roads, screening vegetation to be planted, and several small buildings including a site office and a visitor/learning centre.

Green award recognises UQ's sustainability leadership

UQ 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.

Acting Vice-Chancellor Aidan Byrne said UQ was proud to be recognised as a leader in the sector via the awards, which recognise exceptional sustainability initiatives.

"We're at a moment in history when the decisions we make, in my view, will determine the future well-being of humanity, and we must stop saying that individual action will not make a difference," Professor Byrne said.

"Society is largely built on the cumulative effect of small acts.

"When it comes to climate change, we all share the responsibility and the consequences, and so we all need to make sure that we are doing our bit"



Top: Warwick Solar Farm site aerial view, January 2020. Bottom right: installation of the last solar panel by Andrew Wilson (Manager Energy and Sustainability) and Sarah Haskmann (Project Officer Energy Management). Bottom left: PCU landings, September 2019

History and development

Investigations into the feasibility of UQ transitioning to fully renewable energy began in early 2017. Agreement was reached with renewable developer Terrain Solar in late December 2017 to purchase the project once construction was ready to commence. Terrain Solar led the site selection, land agreements, development approval, and connection agreement aspects of the project

Following the site's purchase in mid-November 2018, UQ has taken full ownership and will maintain operational control over the facility's expected 25-year life.

Existing Ergon Energy network power lines will be extended to connect the Warwick Solar Farm to the network. Ergon-approved contractors will design and build the extension, and Ergon will ultimately own these lines.

Lendlease have been on site mid-February 2019, with construction beginning early April 2019 and completion expected in early 2020.

Cost and funding

A budget of \$125 million covers all project costs including acquisition of development rights, land purchase, construction, connection works, professional fees, and contingency.

A loan from the Queensland Treasury Corporation will fund the majority of the project cost. A large portion of UQ's former electricity spend will now go towards paying back the capital and operating costs of the solar farm.

Research opportunities

The Warwick Solar Farm will support a wide range of research and industry partnerships across multiple disciplines. Many of these will be led by the dedicated UQ Solar Research Group within the Faculty of Engineering, Architecture and Information Technology. Potential areas of research include:

- use of cloud cameras to predict solar farm output
- use of inverters and new market structures to provide voltage regulation and reactive power services to the distribution network
- co-optimisation of providing energy alongside frequency control ancillary services (FCAS) into the National Electricity Market
- integration of behind-the-meter demand response with in-front-of-meter large scale generation.

The facility will also support the development of new and emerging research streams. In particular, the generation profile of the solar farm will provide an ideal opportunity for piloting emerging battery energy storage or hydrogen conversion technologies.

Regional opportunities

UQ is excited about establishing a long term presence in the Southern Downs region and is actively working to identify and develop new opportunities. The University has also committed to installing electric vehicle chargers in the region. This Queensland-made technology has been successfully deployed at UQ's St Lucia and Gatton campuses, and will be made free for the public.