

# Warwick Solar Farm project

Project snap shot – May to July 2019





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 has been 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 with construction work beginning 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*

## Contact

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## May-June 2019 – installation of piles and trackers

Name of Tracker System: NEXtracker NX Horizon

### Pile install:

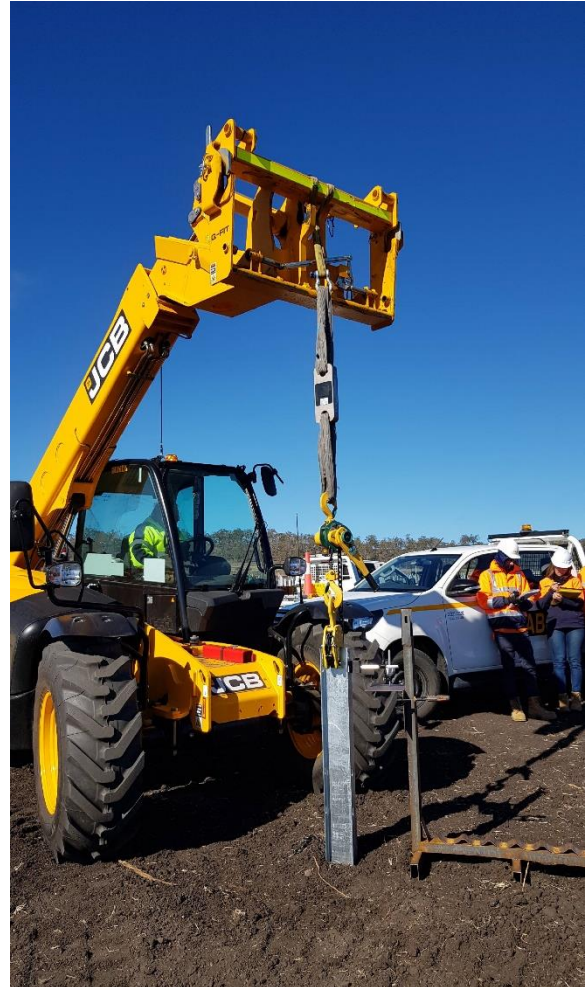
- Number of piles: 31,585.
- There are three different pile types to represent six array loading locations plus Power Conversion Unit (PCU) foundation piles.
- Piles are driven by piling rigs, which pneumatically hammer them down to the correct depth.
- The drive time, per array pile, ranges from 1 minutes to 2½ minutes, based on the ground/soil types and conditions.
- 10 piles (at 3.3 metres long) are driven per PCU.
- PCU piles are driven much deeper to support the 40 foot shipping container (which weighs approximately 30 tonnes).







Sarah Haskmann, Project Officer, Energy and Sustainability  
When piling doesn't go to plan – this is what happens  
when you hit a rock during the pile drive!



In-service pile testing – Vertical load test



In-service pile testing – Lateral load test





PCU piling



PCU piling





Installed piles – southern half of solar farm

**Tracker install:**

- Number of single-axis trackers (rows): 2456.
- Tilt: +/- 60 degrees.
- It tracks east to west throughout the day (but built to align north/south).
- Extra control 'smarts' adjust each row individually to ensure the best alignment with the sun (rather than all moving as one group). This leads to better output during overcast conditions.



Torque tube installation





Torque tube installation



Torque tube fastening





Andrew Wilson, Manager, Energy and Sustainability – standing with NEXtracker slew drive, which turns the tracker row



Torque tube installation aerial



### **Solar panel system:**

Brand: Trina.

Model: Splitmax Monocrystalline (144 half cell).

Power: 380W and 385W

Size: 2 metres long x 1 metre wide.

Weight: 23kg each.

### **Solar panel system install:**

- The Warwick project reached a massive milestone on 25 July, with last solar panel being delivered, we now have over 205,000 on site (spares included)!
- Number of installed PV modules (solar panels): 204,540.

There are two crews currently completing the installation, working as a team and rotating/sharing tasks



PV module installation crew





Newly installed PV modules











**July 2019 – continuing the installation of trackers . Preparation and installation of underground & above ground electrical and solar panels**

**Underground and above ground electrical install:**

- Generally includes: 33,000V AC, 1500V DC cables, fibre optic cables, and earth cables.
- Length of cables (underground): ~220km (that's 1.5-ish trips from Brisbane to Warwick).
- Length of cables (solar farm total): ~300km (that's two trips (or one round trip), from Brisbane to Warwick).
- The underground installation involves digging long straight trenches, adding a bed of sand before layering cables in the trench with dirt backfilled in between each layer until the surface is reached. Trenches can be up to 1.5 metres deep, and cables are further protected with a layer of material placed in-between dirt layers to prevent impacts.
- The above ground installation largely involves connecting all the solar panels to each other in series, and in parallel, along the tracker row.
- Sets of interconnected solar panels are called 'strings'.





Excavator digging a DC trench – trenches are often 100's of metres long and dug perfectly straight



DC cable drums – staged for cable installation









On-site inspections – checking trenches and cables for correct installation



Sarah Haskmann, Project Officer, Energy & Sustainability



Danielle Esterhuysen, Project Officer, Energy & Sustainability





Andrew Wilson and Danielle Esterhuysen - Energy and Sustainability, 'charging' the Tesla (not really)



Last PV module pallet delivered to site





Lendlease logistics team – celebrating with last pallet