# Solar ScaleUp Challenge

## Showcase Event Projects

Australian Government
Australian Renewable Energy Agency

ARENA

greenhouse challenge.

# Showcase Event Projects

**PHASE 1**

Challenge submission

**PHASE 2**

Evaluation & Showcase

**PHASE 3**

ARENA grant

**Following the close of submissions for the Solar ScaleUp Challenge, ARENA shortlisted a group of standout companies to pitch at a virtual Showcase event.**

These companies were selected based on their:

- **Potential to significantly reduce utility-scale solar PV costs.**
- **Strong and credible teams** with a high degree of innovation.
- **Advanced technology maturity**, typically at Technology Readiness Level (TRL) 7 or above.
- **Lower profile in the Australian market**, offering fresh perspectives and solutions.

The list that follows includes both the Showcase presenters and a broader group of promising companies identified through the Challenge. While not all presented at the event, many were invited by ARENA to apply for funding based on the merit of their proposals and alignment with program objectives.

# Installation Technologies | 1 of 2

| Company name | Location | Solution description | Website |
|---|---|---|---|
| **Luminous Robotics** | Boston, USA | LUMI XR—an electric, fully autonomous, industrial-grade (IP65/67) robot for panel picking and placing, compatible with any system or hardware. Equipped with built-in sensors and AI, the LUMI XR enhances operational efficiency and site safety and is claimed to be 2.5 times faster than traditional manual installation methods. | luminous.solar |
| **Built Robotics** | Brisbane, Aus | RPD 35 is a fully autonomous robotic pile-driving system that integrates surveying, pile distribution, pile driving, and data collection into one process. The solution reduces piling time by approximately 80%, delivering significant cost savings and safety benefits. | https://www.builtrobotics.com/ |
| **Gritt Robotics** | San Francisco, USA | A first-of-its-kind AI foundational model to control commercial off-the-shelf equipment—such as industrial robot arms and construction vehicles—for autonomous solar installation. Its autonomous module installation system, currently being piloted on a 650 MW solar farm in Texas, enables a single worker to install around 80 modules per hour, up from the typical 10 modules per hour. | https://gritt.ai/ |
| **Green Energy Systems** | Sydney, Aus | 'Solar Waves' is a modular solar deployment system available in 40kW, 80kW, and 100kW arrays that fold in a concertina-style arrangement for easy transport and installation. The system delivers up to 30% savings on installation costs, features a self-cleaning water spray system that reduces maintenance costs by 90%, and is adaptable for deployment on land, water, or elevated structures. | https://solarwaves.com.au/ |
| **5B** | Sydney, Aus | 'Maverick' is a prefabricated, pre-wired ground-mount technology. Designed for rapid and cost-effective installation, the Maverick enables deployment speeds of up to 1.25 MW in a single day with a team of just eight people and has been used across 90 projects totalling 269 MW globally. | https://5b.co/ |
| **Solpod** | Melbourne, Aus | 'Solpods' are preassembled units of 10 solar panels that fold flat and are packaged into containers, enabling efficient transport (a 40ft container holds ~270 kW of panels and structure). Solpods deliver a 5× improvement in installation labour productivity and a 2× increase in solar capacity per site compared to single-axis trackers. | https://solpod.com.au/ |

# Installation Technologies | 2 of 2

| Company name | Location | Solution description | Website |
|---|---|---|---|
| **Cambridge Energy** | Cambridge, UK | The Nomad Montaro solar tracker system is a prefabricated, all-terrain structure optimised for deployment in remote regions. Its compact design enables easier, lower-cost transport, while the tracking capability delivers up to 35% more energy yield compared to fixed-tilt systems. | https://cambridge-energy.co/ |
| **TrinaBot** | Sydney, Aus | Automated panel picking and placing robot that increases productivity during the construction phase. The robot has been trialed successfully in Asia. | https://www.trinasolar.com/au |
| **Solar Mount Global (All Energy Contracting)** | Queensland, Aus | Automated panel picking and placing robot that increases productivity during the construction phase. The design is based on existing construction equipment, rather than a 'ground-up' design. | https://allenergyco.com.au/ |
| **Terabase** | San Francisco, USA | 'Terafab' solution reduces BOP and installation costs through construction automation. Terafab streamlines assembly of solar modules and trackers, reducing labour costs. | https://www.terabase.energy/ |
| **Nextracker** | Sydney, Aus | New 'Ojjo' truss system to replace vertical piles with a semi-autonomous installation process. The solution reduces onsite labour and capital costs. | https://www.nextracker.com/ |
| **SPD Energy** | Sydney, Aus | Modular, prefabricated, nano-grid solar system. The solution reduces BOP costs, streamlines installation, and minimises O&M requirements. | https://spd.energy/ |
| **Solar Farm Constructions** | Echuca, Aus | Specialized handling equipment with integrated GPS machine control to stage a solar farm's mechanical components to reduce required labour hours. | https://www.solarfc.com.au/ |
| **Energus** | Sydney, Aus | 'eArc' ultra lightweight PV modules that can be tailor made to any size. | https://energus.com.au/newconstructions/ |
| **Metro Power Company** | Perth, Aus | A modular, 4-component horizontal SAT hardware design that reduces labour hours in the field. The design involves factory preassembly to streamline installation. | https://metropower.com.au/ |

# O&M and other LCOE Reduction Technologies | 1 of 3

| Company name | Location | Solution description | Website |
|---|---|---|---|
| **Eurac Research** | Bolzano, Italy | A solution that combines interoperable digital platforms, generative AI, automated diagnostics, and in-field robotics to create fully automated operations and maintenance workflows. This approach links data from monitoring and ticketing systems to generate AI-driven reports and equip robots with sensing capabilities, transforming manual tasks into automated processes across three ongoing EU-funded projects. | https://www.eurac.edu/en |
| **QE Labs** | Singapore | A semi-autonomous drone-based electroluminescence (EL) inspection service for photovoltaic (PV) power plants at night, enabling rapid and accurate detection of defective modules using AI-driven analysis. Their proprietary service supports full-site inspections for underperformance, site acceptance testing, insurance claims, and due diligence during asset transactions, helping PV asset owners maximise performance and financial returns. | https://qe-labs.com/ |
| **Horus** | Sydney, Aus | A drone-based solution to reduce operations and maintenance (O&M) costs for solar assets. Using drones equipped with RGB and thermographic cameras, Horus can complete a 100MW inspection in just two days—cutting time and costs by up to 80% compared to traditional methods, while maximising energy output and minimising downtime. | https://horus.global/en/horus-solar/ |
| **SolarEdge Technologies** | Melbourne, Aus | A market-leading rooftop technology for the utility-scale solar sector, focusing on DC optimisation. By enabling module-level monitoring—one optimizer per two PV modules—the solution enhances system visibility, shortens O&M timeframes, and increases uptime, ultimately reducing the levelized cost of energy (LCOE). | https://www.solaredge.com/aus/ |
| **CQSola** | Queensland, Aus | A simplified power controller solution, managing power at the module level to create a more stable and sustainable DC bus. By eliminating the need for solar inverters, CQSola reduces upfront and O&M costs, improves energy yield, and is ideal for solar farms facing shading challenges, diagnostic difficulties, or battery integration needs. | https://www.cqsola.com.au/ |

# O&M and other LCOE Reduction Technologies | 2 of 3

| Company name | Location | Solution description | Website |
|---|---|---|---|
| **EtaVolt** | Singapore | Advancing solar PV circularity across procurement, operations, and end-of-life management. Its patented ηMax performance maximiser boosts PV output and extends module lifespan, offering a portable, in-field solution that installs without disassembling existing systems. | https://etavolt.com/ |
| **Blurgs Innovations** | Bengaluru, India | Drones coupled with the 'DHOOP AI' system for intelligent monitoring, fault prediction, detection, and prevention solutions. | https://www.blurgs.ai/ |
| **CSIRO** | Brisbane, Aus | Autonomous mapping, inspection, monitoring and preventative maintenance of large-scale solar | https://www.csiro.au/en/ |
| **Lab 360 Solar** | Sydney, Aus | Daylight photoluminescence (DPL) imaging via the use of drones to provide advanced, scalable assessment of panel quality and degradation. | https://lab360solar.com/ |
| **ITP Renewables/INNOV8PV** | Canberra, Aus | Lowering module operating temperatures to reduce module degradation and failure rates. The solution involves improved tracker operation methods, and improved module designs. | https://itprenewables.com/ |
| **Proa Analytics** | Melbourne, Aus | The 'Metcube' weather station that is self-contained and self-sufficient, with simple installation. It provides increased weather data accuracy and reliability for solar projects. | https://www.proa.energy/ |
| **PV Watch** | Sydney, Aus | A suite of machine learning algorithms that utilize readily available data to improve solar farm reliability and design. | https://www.unsw.edu.au/ |
| **PV Chat** | Sydney, Aus | Asset management tool for project developers and O&M companies. Use of conversational AI and energy yield modelling to monitor and inform O&M decisions. | https://www.unsw.edu.au/ |

# O&M and other LCOE Reduction Technologies | 3 of 3

| Company name | Location | Solution description | Website |
|---|---|---|---|
| **Upgrid** | Melbourne, Aus | Tethered spraying drone and autonomous solar PV cleaning robots. The robots can autonomously navigate surfaces, reducing O&M costs. | https://upgrid.com.au/ |
| **University of Queensland** | Brisbane, Aus | 'SolarisAI' O&M platform, designed to improve reliability of solar farms and simplify O&M tasks. The platform detects underperformance and faults, preventing production losses. | https://uq.edu.au/ |
| **Solar Energy Robotics** | Perth, Aus | Robots that integrate smart cleaning and panel condition monitoring. The dual functionality enhances O&M efficiency. | https://www.seraus.com.au/ |
| **Sunpure Technology** | Hefei, China | Fully autonomous solar PV cleaning robots, offering O&M cost savings of 50%. | https://en.sunpuretech.com/ |
| **Trinano Technologies** | Mumbai, India | Solid-state panel coating made of inorganic material, with light-trapping, self-cleaning & anti reflection properties to increase power generation and simplify cleaning. | https://tri-nano.co/ |
| **SolsticeAI** | Melbourne, Aus | Short-term energy generation forecasts that enable asset owners to bid more effectively into energy markets, anticipate curtailment, and improve operation of energy storage systems. | https://www.solstice-ai.com/ |