

CASE STUDY

Tigo optimizers deliver savings at a rugged, remote retreat

Background

Set in the midst of the Main Range National Park in Queensland, the off-grid system for Spicers Retreats Amphitheater Eco Cabins has been designed to meet the highest environmental standards as well as showcase a prestigious level of luxury.

The Amphitheater site is spread out over 9 buildings, including 6 cabins, 2 washrooms and the main pavilion. Solar panels are installed on all buildings and the energy is fed back through DC cables to the main pavilion where the solar inverters are located. The equipment used includes Australian-made Selectronic Battery Inverters, Fronius Solar Inverters, BYD Lithium batteries, SunPower Solar panels and Tigo Module optimizers. Furthermore, all of these components can be easily, quickly and safely dismantled.

To match the brief of the client, the solar array and all other hardware associated with this had to be aesthetically pleasing and had to fall in line with the excellent workmanship of all other contractors on site

Spicers Retreats are known for their ecotourism and have been working on their two unique Eco Cabin sites. The resort has taken the environmental desires of the client into account the system has been specially designed in order to not disturb the native surrounding wildlife during eating and sleeping times. The installation is helping Spicers Retreats work towards their goal of zero net emissions and zero waste by 2030. Another request of the client was a completely off grid system to accommodate for the remote location and experience of the retreat.

Challenges

The project has presented multiple challenges. Access to the site was only possible via 4X4 trucks, shading from trees affecting power generation had to be worked around rather than removed, the 2019-2020 bushfires barred access to the area and was followed a few weeks later by heavy rain. As the site was located amongst protected national parkland, no trees on the site could be cut down to reduce shading over the solar system. Instead, the GEM Energy Team created a detailed map of the shaded areas and simulated how our system would work around them.

INSTALLER



GEM ENERGY

CUSTOMER TYPE

Commercial

LOCATION

Queensland, Australia



FEATURES

Optimization
Monitoring
Safety (rapid shutdown)



TIGO EQUIPMENT

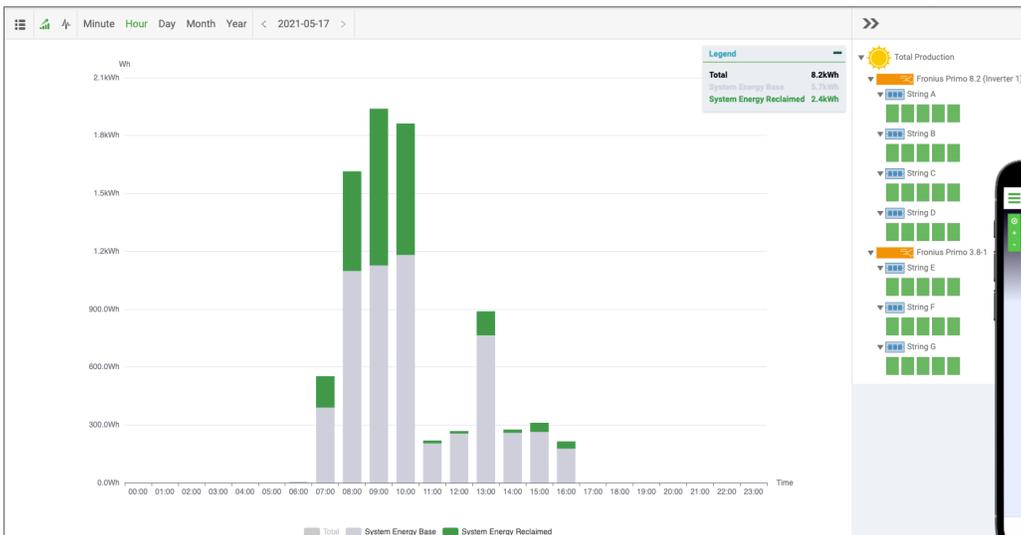
Tigo TS4-A-O
Cloud Connect Advanced
Tigo Access Point

Contact us

<https://www.tigoenergy.com/contacts>

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Tigo®



Tigo Energy Intelligence displays the “Reclaimed Energy” from its optimizers as stacked green bars (left) and module level data (below).



The retreat is surrounded by large trees, which creates challenges for shading as well as maintenance from falling branches.

The solution

The team opted to use Tigo optimizers for the array of solar panels instead of micro-inverters or other optimizers because of how robust and reliable the Tigo equipment is. Tigo optimizers are unique in that they will keep the panel going as much as possible despite any failures or damage by bypassing the panel’s electronics. Because of this, all of the panels in our Amphitheater system will continue to contribute to the overall system even if they become damaged or fail in some way. Along with this, Tigo equipment allows our client to monitor the performance of each panel remotely and to be fully up to date on the condition and production of the system at any time.

A secondary reason for why Tigo optimizes have been used is the ability to monitor the solar panels for potential damage due to fallen branches. As the site is located in the rainforest, this can and has already happened. Via the Tigo monitoring app, the customer can identify potential broken solar panels, isolate and make repairs.

Summary

Overall, the designing, building and installation of this two-of-a-kind system has only been achieved through the determination of the GEM Energy Team to deliver on its commitments to this highly valued client.

Equipment used:

- Tigo TS4-A-O optimizers
- Modules: 400W Sunpower Maxeon
- Fronius inverters
- Batteries: 138 kWh BYD

Images courtesy: [GEM Energy Australia](#)