

# Optimizing Safety with SolarEdge

► Darwin, Australia

► 99.84 kWp



With SolarEdge, whenever AC power is off, DC wires are automatically de-energized. Power optimizers automatically shut down the DC voltage in the PV wires to protect installers, maintenance personnel, and firefighters. The SolarEdge solution meets the most advanced safety standards.

Installation Date: May, 2014

Inverter: 6 X SolarEdge SE17K

Power optimizers: 208 X SolarEdge OP600

Modules: INFINITY NEW ENERGY  
Panels 416 X 240W



“SolarEdge products were the obvious choice because its technology offers the best-in-class safety. With SolarEdge power optimizers, the DC voltage in the PV string cables is reduced to a safe, extra-low voltage when the inverter is disconnected. This protects our installers, maintenance personnel, and firefighters. No other system can offer this type of safety.”

► John Hayes, Director of Johnny Cool

As part of an ecobuild project for the Casuarina Library, the Darwin City Council decided to install a PV system on its roof. Wanting to both maximize energy production while simultaneously receiving the best-in-class safety, the Darwin City Council selected to install SolarEdge, based on the recommendation of its installer, John Hayes.

## Best-In-Class Safety

SolarEdge’s SafeDC™, an integrated feature in SolarEdge power optimizers and inverters, is the only system that ensures complete safety for installers, maintenance personnel, and firefighters. The system works by shutting down DC current, as well as voltage in string wires, when the inverter is turned off or in safety mode. With SolarEdge, whenever AC power is shut down or the inverter is disconnected, DC wires are automatically de-energized and the output voltage of each optimizer equals 1V. This eliminates the risk of electrocution and unsafe, high-voltage.

In addition, the SafeDC™ can be triggered from the SolarEdge Firefighter Gateway, which provides centralized safety management of PV systems. Firefighters can immediately stop production of a SolarEdge PV system, either manually through an emergency stop button or automatically through a Fire Alarm Control Panel System.

## Increased Energy Yield through Module-Level MPPT

SolarEdge module-level power optimizers perform per module maximum power point tracking (MPPT) and therefore allow each module to generate its own maximum possible energy and therefore eliminate power losses due to module mismatch. A comparison by PVsyst, a third-party software, showed that Casuarina Library should expect to receive a 7% 20-year, cumulative increase in energy compared to a typical string inverter due to elimination of module-level mismatch.

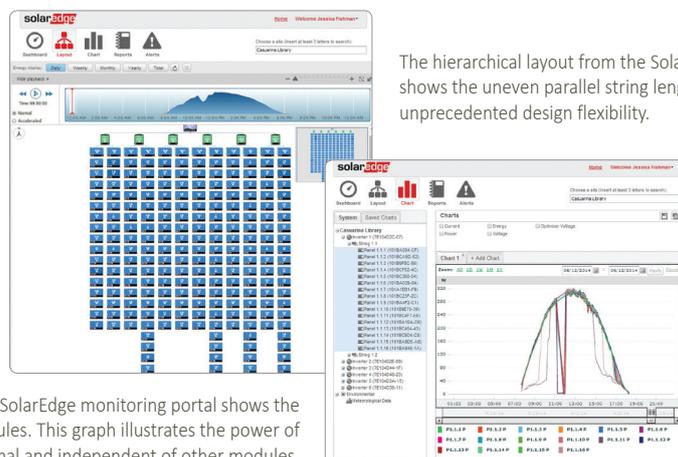
## Maximum Design Flexibility

SolarEdge power optimizers maintain a fixed-string voltage at the inverter input. This provides unprecedented design flexibility through significantly longer strings- up to 50 modules per string. The Casuarina Library installation has string lengths of both 40 and 32 panels. By increasing the string length, Casuarina Library was able to decrease the amount of strings, resulting in a significant reduction in DC BoS costs.

Additionally, SolarEdge technology allows strings of uneven lengths to be comprised of modules installed on varying roof tilts, orientations, and facets. This flexibility in design allowed Casuarina Library installation PV system to have parallel strings with one string being 17 modules and another string being 21 modules.

## Enhanced Maintenance

SolarEdge power optimizers enable performance monitoring at the module level. Alerts and underperforming modules are pinpointed on a virtual site map which offers Casuarina Library fast and accurate maintenance, remote trouble shooting, and increased system uptime.



The hierarchical layout from the SolarEdge monitoring portal shows the uneven parallel string lengths and proves the unprecedented design flexibility.

The chart view from the SolarEdge monitoring portal shows the performance of individual modules. This graph illustrates the power of each module is optimal and independent of other modules.