CASE STUDY

System Upgrade with SolarEdge

Capacity: 4.9 kWp

Location: Mindarie, Western Australia

Installation date: July 2013

Inverters: SE4000

Power Optimizers: OP250 and OP300

Modules: 18 x 170W + 7 x 265W

Installed by: PPS

Multi-orientation roof with partial shading and different size modules connected in a single string to the SolarEdge inverter

Prior to speaking with PPT, the customer had a 3kW system consisting of 170W panels, split across two roof facets facing opposite directions, they were connected to a traditional single input string inverter. As a result, the customer was suffering disproportionate energy losses. Additional energy loss was caused by local trees and structures which created progressive partial shading in the morning and afternoon. PPS knew that this problem could be solved by utilizing the SolarEdge system, which consists of a SolarEdge inverter and power optimizers providing module-level MPPT.

"This installation was a perfect candidate for the full range of features of the Solar Edge system. A multi-directional array, newer and older PV technology of different sizes, and shading on different areas at different times of the day. I also generally find the SolarEdge system to be the most adaptable, safest, and technologically advanced equipment currently available. With a standard warranty of 12 years on the inverter, and 25 years on the power optimizers, not only does this give me peace of mind, I can also instill confidence in my customers that they have made the right choice."

Adrian Hawke, Director/Technical, PPS

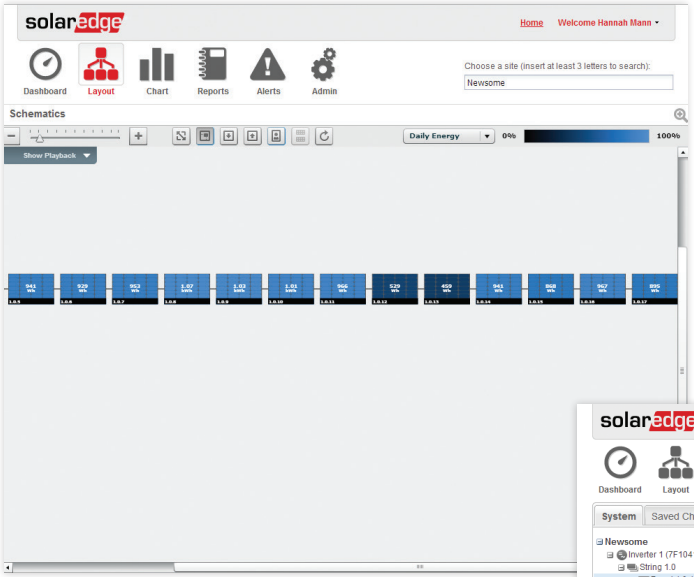
With module-level MPPT each module has an individual MPP tracker and receives the current and voltage required to work optimally independent of other modules in the string. Thus, as opposed to string inverters, the SolarEdge system allows installers to install modules on different facets or modules with different output capacities in the same string, while maintaining the highest attainable energy output. The effects of partial shading on the string are fully mitigated.

CASE STUDY

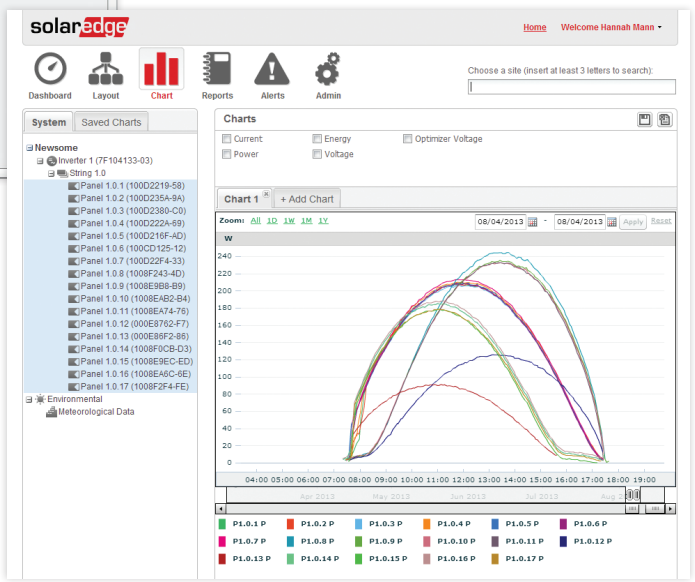
Energy output below expectations was not the only problem faced by the system owner with the previous system. The installer had unduly spread the system across two facets because the owner had asked to receive the largest possible capacity.

After PPT had solved the orientation issue by upgrading the installation to SolarEdge, they were also able to increase the size of the system by adding a third orientation to the string with larger and new 265W panels. This ultimately increased the system's output capacity by a further 1855W.

In addition, PPS also uses the module-level monitoring feature of the power optimizers. Power optimizers transfer performance data of each individual module to the SolarEdge monitoring portal from which PPS can remotely review the site's performance with access to module-level diagnostics and confirmation of system component health.



The Layout view from the SolarEdge monitoring portal shows the electrical connectivity of all modules in the string. The blue color code indicates the performance level of each module and proves that each module works in an individual capacity. In this case, darker modules are either partially shaded or lower capacity modules.



The Chart view of the performance of every individual module in the SolarEdge monitoring portal. The screenshot shows how the different capacity modules and modules placed on different orientations perform independently of each other.