CASE STUDY

MALL NEAR SECUNDA

Background

A retail development in the Secunda area in Mpumalanga was officially opened in 2007. It is the only formal retail offering in its primary catchment area with approximately 300 000 residents. The mall is located adjacent to main taxi rank and transport node.

In 2015, a grid-tied solar plant was built on the roof of the mall by a competitive solar construction company, using thin film panel technology. In 2018, a large section of this solar plant was damaged in a fire, after which many of the panels were destroyed.

Objective

New Southern Energy stepped in to replace the solar panels that had been damaged in the fire and to restore the solar plant's functionality. At the same time, NSE needed to address the system's reporting challenge.

The solar plant's performance was difficult to monitor due to the inverter technology that had been deployed. The original inverter technology did not have its own built-in monitoring system. A third-party monitoring system that was in place did not function.

This meant that both panels and inverters needed to be replaced, and a monitoring system implemented.

Results

The site's renovation and upgrade were completed late in 2019. The system has been operating efficiently ever since.

The system currently generates 20 – 25% of the site's energy supply. The performance of the system can now be monitored accurately.

Subsequent to this renovation and upgrade, New Southern Energy have built solar systems at seven other malls owned by the same owners as this mall near Secunda.

Solar solution

New Southern Energy replaced a large portion of the panels and inverters as follows:

Old panels: Solar Frontier 170 Wp Thin Film Solar Modules x 4160, total DC power = 707.2 kWp
New panels: Canadian Solar 330 Wp Polycrystalline Solar Modules x 950, total DC power = 313.5 kWp

The total new plant size is 1020.7 kWp (DC).

Old Inverters: Delta 50 kW unit x 20 (1000 kW AC capacity)
New inverters: Fronius 27 kW unit x 34 (918 kW AC capacity)

The system's performance is now monitored and controlled through a master controller, which can also communicate with the inverters. All of the data is logged and saved in cloud-based storage. Furthermore, the performance can be monitored in real time via a smart phone app.

Team

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