CASE STUDY

FRUPAK

Background

Frupak runs an apple packing facility in the Ceres area in the Western Cape. The premises house a large packing warehouse with two packing lines as well as forty cooling rooms, to service the apple farming industry in the province.

The packing operation runs for ten months of the year, in line with apple harvests and trade. Naturally a facility of this nature uses a high amount of electricity to ensure that quality control and minimal waste.

Objective

Frupak approached New Southern Energy with their goal to become more sustainable and reduce their electricity expenses. This way, they could reduce both their reliance on the national grid, and the company's carbon emissions.

Results

The site was commissioned early in May 2021.

The system currently generates 20 – 25 % of the sites total consumption

In its first year, the system is expected to generate 819 362 kWh, which, based on a tariff of 1.2 R/kWh, will save the company approximately R 1 million.

This solar plant has an estimated lifespan of 25 years

Solar solution

New Southern Energy designed and a built a 507.43 kWp solar system made up of 1318 x 385 Wp Canadian solar panels and 15 x 27.6k Solar Edge String Inverters. The panels are mounted on the roof of the packing warehouse, and the string inverters were installed inside the building within an identified space on site.

The system connects to the low voltage network of the facility. Additionally, it synchronises with the existing diesel generator supplying the packhouse to offset the fuel consumption. The AC generated power from the inverters are combined in a solar DB which connects to the main low voltage distribution board. This solar system is also grid-tied, meaning that it is connected to the national electricity grid.

The system's performance is monitored and controlled through a master controller, which can also communicate with the inverters. A Solar Edge plant controller enables the PV system to synchronize with the diesel generator, reducing the fuel consumption during load shedding and power outages. The plant controller does not control the generators separately, but rather as one big generator.

All of the data is logged and saved in cloud-based storage. The monitoring and controlling system also includes a weather station which measures the solar radiation and module temperature. Furthermore, the performance can be monitored in real time via a smart phone app.

Team

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