



Background

The popular Nicolway Bryanston neighborhood shopping centre is situated in the northern suburbs of Johannesburg. The relatively small centre has a remarkable variety of tenants, from the large chain stores to the more unique offerings, in a compact arrangement that makes shopping easy. Including stores such as Woolworths, Shoprite, Dis-Chem, Clicks, Food Lovers Market and Exclusive Books as well as retailers in arts, electronics, optometry, banking, health and beauty, décor, jewelry, travel and more, the classy centre is a convenient one-stop retail destination for residents of the area.

Delivering on its commitment to trade in a more sustainable way, and use its space optimally, Nicolway Mall invested in a solar plant on its roof. This way, the centre could not only reduce its carbon footprint, but also ensure their operations draw less power from the national grid, in light of the country's electricity challenges.

Objectives

Nicolway Mall approached New Southern Energy with their goal of using the roof space for a solar plant. The centre had already implemented a recycling system for all used paper, plastic, cans and glass, which has been embraced by tenants. Furthermore, they had installed water savers on the taps in the restrooms. The addition of solar energy would take their sustainability commitment further.

However, there was another key priority. Given that the centre has high foot traffic, made up of discerning customers, the installation process needed to be as quiet and subtle as possible, so as to avoid any potential disruption to shoppers. Additionally, there was no space to build an inverter station and a solution was needed for this.

Quality management

The construction process was quiet and carefully managed. Materials were delivered at night so that trucks did not take up parking space. Deliveries were done daily to avoid the need for storage space. In this way, the construction of the plant did not affect anyone's shopping or trading.

The walkways allow for easy cleaning and maintenance of the solar panels without causing any damage to the roof.

To house the inverters, the New Southern Energy team found two walls upon which they built smart roofs with hinges. These can be opened when engineers need to work on the inverters.



↑ Inverter station

Solar solution

New Southern Energy designed and built a sophisticated 1,1-megawatt solar energy system for the centre. The solar plant is made up of 2 720 Canadian solar panels and 33 x 27 kW Solar Edge inverters. East-West facing, due to the centre's layout, the system is able to produce a significant amount of power for the centre's energy needs, simply by absorbing the sun's energy and converting it to electricity. This solar system is also grid-tied, meaning that it is connected to the national electricity grid.

This solar plant has an estimated lifespan of 25 years.



System performance

The site was commissioned early in 2020. The site has two sections (north and south) and ties in at two separate transformers. The performance data is a combination of the two. The system currently generates 17% of the site's energy daytime supply and 40% of its annual requirement.

The system will generate approximately 733 270 kWh in its first year of operation, saving the company an estimated R 600 000 in its first year.

The system's performance is 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.



The plant is currently overperforming compared to simulated value. Inverter production on both sections of the plant is consistent on a clear day.



Operations and Maintenance

New Southern Energy manages the operations and maintenance of this solar plant. The system's performance is monitored daily and should any faults occur, technicians are dispatched to rectify it swiftly.

The panels are kept clean at all times to ensure optimal performance.

← Solar plant walkways for cleaners and technicians