



Background

Nestled in the foot of the Magalies Mountains in Krugersdorp, South Africa, Silverstar casino and entertainment centre is the playground of choice not just for residents of the West Rand, but for anyone seeking an easy-going entertainment destination with a restaurant offering that leaves no craving unsatisfied.

The complex features a dazzling casino, a live entertainment theatre, outdoor piazza that houses with a big screen, a cinema complex, ten-pin bowling alley, Laser Tag centre, health spa and a games arcade. Open seven days a week, the complex needs continuous energy to ensure smooth operations of its various offerings.

The rate for electricity in this municipal area is particularly high, so even though roof space at this facility is limited, installing a solar power system was a worthwhile investment that would reduce the site's electricity expenditure in the long term.

Objectives

The client's objective with this solar system was to invest in a quality solar solution that would yield long term savings. While all solar systems are built with efficiency in mind, the priority was to maximize both efficiency and space.

Given that this is a casino environment, health and safety was of vital importance. Several site-specific requirements had to be accommodated into the planning of this system. There was also a firm deadline regarding construction and a finite window for switch-on.

Due to this being an operational environment, the construction of the system could not affect patrons or trade in any way. Additionally, there was limited space in which to drop or store off materials.

Quality management

All of the health and safety requirements stipulated by this site were accommodated comfortably by the NSE construction team. A daily security check took place, with which the NSE team complied.

Solutions were found for all of the logistical challenges including the limited space to load in materials, limited storage space and the particular time window for switch on. The NSE team worked under the radar and did not disrupt traffic or the daily operations of the centre in many way.

Comfortable walkways were built into the system to ensure easy access by cleaning and maintenance teams and technicians in future.



↑ Solar carport

Solar solution

New Southern Energy designed a 500.5kWp PV solar system that features 1100 x 455Wp JA Solar Panels and 11 x 33.3kW SolarEdge Inverters. The ideal orientation of solar systems in South Africa is facing north at 30 degrees. Two separate areas were identified so as to house the panels neatly, in a way that would provide optimal efficiency.

In 2023, two additional sections were added: a ground mounted system and a solar carport. The solar carport has the additional benefit of providing shaded parking, as cars can park under the structure.

This solar system is also grid-tied, meaning that it is connected to the national electricity grid. The system provides a significant saving, particularly in light of the high rate paid for electricity in this area.



↑ Phase 2

System performance

The site was commissioned in March 2023, with phases 2 and 3 completed later in 2023. With all three phases, New Southern Energy completed the construction of this system well within the deadline. In fact, the system was switched on 4 days earlier than expected.

The system currently generates 5% of the site's energy daytime supply. The system will generate an expected 745 200 kWh in its first year of operation.



The plant is currently delivering in line with the simulated output. Inverter production 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 with multiple sections