

SUSTAINABILITY JOURNEY FOR MIDSTREAM



Centurion – As part of Midstream Electrical Supplies (MES) master energy plan, the municipality has embarked on a sustainable journey through the installation of solar solutions with the expert assistance from The Energy Gurus team. Midstream Electrical Supplies (MES) is a local municipality that purchases electricity from Eskom and then services and resells to the greater Midstream region.



The Energy Gurus were appointed as the service provider of choice by Midstream Electrical Supplies to provide options for sustainable power solutions to Square@Midstream, which is a shopping complex that is based in the area that the municipality supplies electricity to. The centre is home to a diverse range of stores and restaurants namely, Mugg & Bean, Turn & Tender, a hardware store, SuperSpar and Vodacom just to name a few. The increasing cost of electricity and the increase in the load shedding schedules, which often change at short notice, are the motivating factors for Midstream's energy approach towards a reliable and cost efficient future.



When load shedding kicks in, the shopping complex utilizes its two on-site generators, which is a costly exercise to make use of these generators solely. The municipality made the decision to move towards a more cost effective and sustainable solution.

The Energy Gurus proposals were received and approved for the installation of two solar systems. The one solar system feeds into the south side of the building which is the half that services Spar, Turn & Tender, Vodacom, and some smaller shops. The second substation was installed on the northern side which services the hardware store, Mugg & Bean, the pharmacy and some of the other restaurants.

The total system size of this Midstream project is 758,4 kWp that feeds power into five 120 kW GoodWe inverters.

In the case of the power supply to SuperSpar, the generator on its own is unable to generate sufficient power therefore the solar power provides capacity in terms of a backup power that also supports the generator during the day. For the entire project, 1,171 solar panels were installed, and part of the process also required the team to cut through the tar in order to install PVC pipes that were used to get the DC cables from the roof into the actual substation, and once this process was completed, the tar was replaced.



"Some of the key facts about the project that made it very interesting for us as a team, is that this installation was one of the single largest commercial projects that utilised the largest solar panels in the country at the time.

The solar panels that we used were 660W panels sourced from Trinasolar . This meant that by making use of the larger sized solar panels, less panels and less DC cable were required for the coverage area, which reduced losses and generate a better energy output" said Adriaan Ballack, Project Manager, The Energy Gurus.



Since the installation in December 2022, the centre has seen reduced diesel expenses. The Square@Midstream project was the first that The Energy Gurus have undertaken where a fully-fledged, aluminium grid walkway was installed on top of the newly renovated roof. The walkway allows foot traffic between strings of panels which enabled an easy installation on such a large surface and also for future maintenance purposes when access to the roof area is required. Midstream Electrical Supplies (MES) had the new roof installed as part of the long term investment in order to support the maintenance of the solar system.

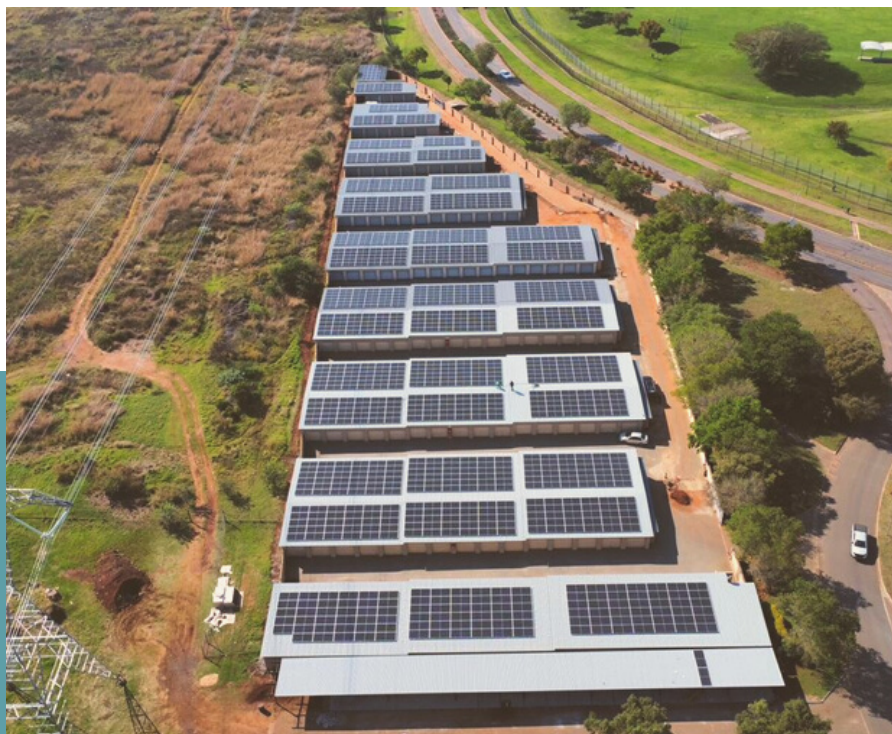
Within the southern substation, the generator has a transformer which has three inverters, and these three inverters feed into a DB. The power is then transferred into the transformer. We installed an aluminium roof awning to protect the inverters from the sun and weather conditions and the same was done for the DC fuse box. Approximately 12km of DC cable was used to complete the installation, and the total project took the team 11 weeks to complete even throughout the December holiday period.





MIDSTREAM ENERGY EXPANSION

As part of the expansion of the Midstream master energy plan, the municipality is also exploring adding batteries and more solar plants so that they get to a point where they are no longer reliant on the Eskom power grid. Following the project at the shopping centre, the Energy Gurus were awarded the second project which was a 760kWp solar PV plant built on the south side next to the municipality's storage facilities. The company looks forward to sharing more exciting news on this and other projects completed for MES and the Midstream community.



Above & Right

*The 760kWp solar PV installation
situated in the storage area next to
Midstream Familie Kerk.*



The Energy Gurus

With over 10 years industry experience, The Energy Gurus are one of South Africa's leading engineering firms in the commercial, industrial, agricultural and residential energy sectors. The Energy Gurus directs their focus on the individual and unique requirements of each client, building bespoke, cost efficient and sustainable energy profiles.

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