Contribution ID: **230** Type: **Poster Presentation**

Performance evaluation of a 5kWp photovoltaic system in the Eastern Cape

Thursday, 6 July 2023 16:12 (1 minute)

Most areas in South Africa receive an average more than 2 500 hours of sunshine per year, and average solar-radiation levels range between 4.5 and 6.5kWh/m2 in one day. This has necessitated the use of solar energy in South Africa, solar energy lends itself to several potential uses and the country's solar-equipment industry is developing. Residential homes have since started installing solar PV systems given the challenges that the country's energy supply. In this paper, the performance analysis of a standalone 5 kW solar system has been conducted. The system is installed on a residential home with a 5 kW hybrid inverter, 5 kWp PV modules, and a storage battery bank of 9 kWh for supplying the domestic load. The system was programmed to prioritize the load and excess used to charge the battery which was then used as a source of energy to compliment the PV during the day and in night-time used to supply electricity to the load. The system data was collected for a period of four months that is April to July 2022, and the variation of daily energy production, consumption and battery bank input or output energy were analyzed. The findings from this study enables understanding of hybrid inverter systems which will provide useful reference in the future applications of these inverters in the residential areas.

Apply to be considered for a student ; award (Yes / No)?

No

Level for award;(Hons, MSc, PhD, N/A)?

N/A

Primary authors: MHUNDWA, Russel (University of Fort Hare Institute of Technology); SIMON, Michael (FHIT)

Presenter: MHUNDWA, Russel (University of Fort Hare Institute of Technology)

Session Classification: Poster Session 2

Track Classification: Track F - Applied Physics