



University of Nairobi

**STUDY OF PERFORMANCE OF AN INSTALLED PV-GEN SET HYBRID SYSTEM:  
A CASE STUDY OF MPALA RESEARCH CENTER, NANYUKI**

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## ABSTRACT

The number of PV and PV-hybrid systems installed worldwide has been experiencing a significant increase during the recent years. Essentially, most of the isolated places and villages in the rural area of our country KENYA have adopted the PV-hybrid systems. Reason being they have not been incorporated not the Rural Electrification Program (**REP**) by the government. This is because some of the places are sparsely populated hence low energy demand and underinvestment in infrastructure has hindered the grid power from reaching there. This research analyses the long term performance of a selected site known as Mpala Research Center located in (longitude, latitude) 40 kms off Nanyuki town on the northern side of the equator. This place was taken as a case study sample to represent many other systems that have adopted the PV-gen set hybrid systems in our rural areas. The study established great energy losses in unsized PV-gen set. It also presents some calculations for the yield of the system and load audit as well as recommendation for improvement of the system and close examination to the system to establish the necessary changes to help correct the sizing errors.