Abstract

The Kenyan Government is committed to promoting electricity generation from Renewable Energy Sources (RES) with priorities in solar, wind, hydros, biomass and geothermal. In this study, the potential of solar energy as a local source of clean and renewable resource for Nakuru was investigated. Global daily radiation intensity covering period 1986 to 2010 and air temperature records from 1960 to 2008 for Nakuru obtained from archives of the Kenya Metiorological Department (KMD) were subjected to a number of statistical analyses that included: Quality control and Homogeneity tests, temporal, time series as well as empirical statistics. The characteristics examined for the resource include diurnal; seasonal and annual power expectations. Results revealed that Nakuru is a moderate to high solar energy potential region, with an average daily insolation of 6.9kWh/m2. It was also revealed that the energy reaching the surface in this area is season dependant with December-February season receiving the highest amount of 678 kWh/m2 and September-November season receiving the least amount of 602.6kWh/m2. The study concludes that Nakuru is endowed with abundant solar energy resources, favorable for tapping at both small and medium scale levels. These levels are quite convenient, particularly for isolated households in the rural and pre-urban settings of the town. The solar energy potential revealed by the study is bound to go a long way in fulfilling the vision of Kenya energy policy as elaborated in sessional paper No4 of 2004.