Analysis of wind characteristics of Olderkesi region in Narok county

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Abstract

Kenya has one of the fast-growing population and economies in Africa. This growth is accompanied by logarithmic growth of energy demand in relation to population and economic growth. Current energy demand is largely serviced by biomass and fossil fuels both of which are in steady decline according to studies. These sources are also associated to environmental pollution and its related hazards such as climate change. These challenges provoke need to shift to renewable energy sources as alternative sources. The shift can only be fully achieved if the concept of energy mix is fully embraced. This is not the case as it is currently since wind energy uptake and growth is still lagging behind according to energy reports by EPRA. Even though wind energy exploitation is low, Kenyan wind map show that there is huge wind power potential for most part of the country. This may be attributed to the scanty or no information on wind characteristics for most parts of the country currently witnessed in literature. This study partially bridges this gap by studying wind data of Olderkesi region in Narok county to establish the wind characteristics relevant to wind power development. The study found out that wind regime in Olderkesi is turbulent in general with the maximum turbulence occurrence in the month of May with turbulence intensity of 0.97. While the turbulence is lowest in the month of September with turbulence intensity of 0.42. Mean wind speed was found to be maximum in the month of September (4.06 m/s) and lowest in the month of January (1.26 m/s) The study also established that the most suitable time for wind power generation in Olderkesi is between 0600 Hrs to 1400 Hrs The mean power density for Olderkesi was found to be. The characteristics suggested that wind power production in Narok is viable.

Key words: Wind characteristics, Narok County, energy