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Assessment of wind energy potential in Gaza Strip

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The analysis of collected wind data at two sites in the Gaza Strip, namely, Gaza City and Gaza International Airport in Rafah city, is presented. The two sites are candidates for remote area wind energy applications. The purpose of this paper is to present the results of the assessment of wind energy potential in the Gaza Strip in order to evaluate the wind regimes for installing wind energy conversion systems for power generation. The data on wind speed, direction and frequency distribution are used to analyze wind energy characteristics and availability at some stations in the Gaza Strip. The vertical extrapolation was based on the power-law expression, and the wind energy and potential have been estimated at the wind turbine hub height of approximately 50 m. Furthermore, the values of the Weibull parameters c and k are determined from summary statistics of wind resource. Consequently, the wind power is estimated by adoption of the Weibull distribution expression. Based on the results of this paper, sites are recommended for wind energy exploitation in the Gaza Strip.