

Title: Wind Resource Evaluation In Six Selected High Altitude Locations In Nigeria

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Abstract: This paper presents an assessment of wind energy potentials of six selected high altitude locations within the North-West and North-East geopolitical regions, Nigeria; by using 36-year (1971e2007) wind speed data subjected to 2-parameter Weibull distribution functions. The results showed that the maximum mean wind speed is obtained in Katsina as 9.839 m/s while the minimum value of 3.397 m/s is got in Kaduna for all the locations considered. The annual wind power density and energy variation based on the Weibull analysis ranged from 368.92 W/m² and 3224.45 kWh/m²/year to 103.14 W/m² and 901.75 kWh/m²/year in Kano and Potiskum for the maximum and minimum values respectively. Furthermore, Katsina and Kano will be suitable for wind turbine installations while Gusau will only be appropriate for wind energy utilization using taller wind turbine towers whereas Kaduna, Bauchi and Potiskum will be considered marginal for wind power development based of their respective annual mean wind speeds and power densities.