

**Title:** Wind Resources In North-East Geopolitical Zone, Nigeria: An Assessment Of The Monthly And Seasonal Characteristics.

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**Abstract:** This paper evaluates wind speed data of 37 years, 1971–2007 periods measured at 10m height for five meteorological stations in North-East geo-political zone, Nigeria, namely Bauchi, Nguru, Maiduguri, Yola and Potiskum that have been analyzed statistically to examine the monthly and seasonal variation of the wind characteristics. Wind data at 50m hub height were obtained by extrapolating the 10m data using the power law. The results proved Bauchi and Maiduguri to be the best sites among the five locations with monthly mean wind speeds ranging from 3.96 to 7.04 m/s and 4.49 to 6.10 m/s respectively while monthly average power density varies between 61.33–299.88W/m<sup>2</sup> and 63.80–173.70W/m<sup>2</sup> in that order, followed by Potiskum recording monthly mean wind speed ranging from 3.92 to 5.68 m/s coupled with an average power density between 53.82 and 150.84W/m<sup>2</sup> in April and June. A Weibull distribution also gave a better fit than actual data while further investigations revealed higher wind speeds in the morning hours for Nguru, Maiduguri and Potiskum together with equal monthly periods of rainy and wet seasons whereas Bauchi and Yola are windier in the afternoon than morning periods with almost comparable months of rainy and dry seasons. Furthermore, wind availability shows that Maiduguri has wind speed above 4 m/s, 100% of the time in the two seasons while Bauchi, Nguru, Potiskum and Yola have approximately 80 and 100%, 50 and 50%, 75 and 75%, 50 and 50% periods of wind availability above 4 m/s in the dry and rainy seasons respectively.