World Academy of Science, Engineering and Technology
International Journal of Energy and Environmental Engineering
Vol:17, No:08, 2023

Wind Power Density and Energy Conversion in Al-Adwas Ras-Huwirah Area, Hadhramout, Yemen

Authors : Bawadi M. A., Abbad J. A., Baras E. A.

Abstract : This study was conducted to assess wind energy resources in the area of Al-Adwas Ras-Huwirah Hadhramout Governorate, Yemen, through using statistical calculations, the Weibull model and SPSS program were used in the monthly and the annual to analyze the wind energy resource; the convergence of wind energy; turbine efficiency in the selected area. Wind speed data was obtained from NASA over a period of ten years (2010-2019) and at heights of 50 m above ground level. Probability distributions derived from wind data and their distribution parameters are determined. The density probability function is fitted to the measured probability distributions on an annual basis. This study also involves locating preliminary sites for wind farms using Geographic Information System (GIS) technology. This further leads to maximizing the output energy from the most suitable wind turbines in the proposed site.

Keywords : wind speed analysis, Yemen wind energy, wind power density, Weibull distribution model
Conference Title : ICDAREI 2023 : International Conference on Data Analytics for Renewable Energy Integration
Conference Location : Kuala Lumpur, Malaysia
Conference Dates : August 17-18, 2023