# Feasibility Study of Wind Energy Potential in Turkey: Case Study of Catalca District in Istanbul

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**Abstract :** This paper investigates the technical evaluation of the wind potential for present and future investments in Turkey taking into account the feasibility of sites, installments, operation, and maintenance. This evaluation based on the hourly measured wind speed data for the three years 2008–2010 at 30 m height for Çatalca district. These data were obtained from national meteorology station in Istanbul–Republic of Turkey are analyzed in order to evaluate the feasibility of wind power potential and to assure supreme assortment of wind turbines installing for the area of interest. Furthermore, the data are extrapolated and analyzed at 60 m and 80 m regarding the variability of roughness factor. Weibull bi-parameter probability function is used to approximate monthly and annually wind potential and power density based on three calculation methods namely, the approximated, the graphical and the energy pattern factor methods. The annual mean wind power densities were to be 400.31, 540.08 and 611.02 W/m² for 30, 60, and 80 m heights respectively. Simulation results prove that the analyzed area is an appropriate place for constructing large-scale wind farms.