

Population growth in Iraq lead to increase of the energy consumption. Though in Iraq promising renewable energy sources to enhance local energy supply characterized by economical and environmentally friendly sources, such as wind and solar. This study deals assessment of the ability to utilize the wind speed to produce electricity as a renewable energy in Samawa district, situated in southern Iraq on latitudes(31.316) and longitude(45.283) Monthly rates of climatic data measured at an altitude of 11 meters (altitude of the meteorological station in Samawa) to estimate the daily and annual rates of parameters at different elevations for a five year period (2012-2016). The data included wind speed, temperature and of relative humidity. The simulation was carried out through a software computer program prepared in this study. That to verify accuracy of daily behaviour of climate variables, which ensure a more realistic view of this behaviour by calculating daily and annual rate of wind speed, air density, temperature, relative humidity and air pressure, power and the power density obtained from wind. Also loss percentage of power resulting from the effect of temperature and humidity in the study site in terms of elevation, taking into account the estimation of friction coefficient values according to the statistical calculation of wind speed of the study site. To determine of the minimum height satisfied the wind speed around to 5 m / s , the study shows the minimum limit of mean height to verify this speed is nearly 35 m . The effect of temperature on the extracted power has been studied. The study illustrates the percentage loss in annual rates of wind power ranging between 4.7% (at study period 2013) and 5.8% (at study period 2016). The study the is dealt with the losses in the air density, it is also illustrated the amount of percentage of loss in annual rates of air density ranging between 4.7% (at study period 2013) and 5.8% (at study period 2016). The effect of relative humidity on the extracted power has been studied. The study also showed the power loss percentage resulting from humidity effect. It is noted that the least loss in value occurred at minimum altitude XII reached approximately 0.76% at study period 2014, whereas the largest loss at the minimum height reached nearly 0.9% at study period 2015, and the value of loss percentage reduces and the height increases. Weibull parameters have been estimated by using Energy Pattern Factor statistical method and utilizing to study of Weibull distribution functions. The behavior of probability distribution function for daily mean of wind speed and the cumulative distribution function for study period at two different heights have been studied using EPF statistical method. The study showed the daily mean of speed characterized by good values and frequency at 75 m height, all the values to get over 5m/s and ranged between 5.14 m / s to 8.23 m / s , in addition to encourager ratio of frequency at 75 m height. The study shows that the maximum value of cumulative distribution function of daily mean of speed alternative between 0.89 to 0.92 at 35 m height and 0.955 to 0.98 at 75 m height, it is depended on the wind speed value, also the study shows the period of study 2015 distinguishable by high speed. The most probable wind speed and the wind carrying maximum energy have been estimated.