

عنوان مقاله:

Wind Power Estimation from Forecast Wind Data

محل انتشار:

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خلاصه مقاله:

Efficient wind power production forecasting requires wind speed pattern study. Monthly wind data is insufficient to derive the pattern of wind speed. Long-term study of wind data was presented in this study to model the wind pattern. This study aims to estimate wind power from forecast wind data. Ten years of daily wind speed data set in Langkawi was used to retrieve the pattern of wind. Qualitative analysis used to study the annual characteristic of the wind. Several of time series models were tested with penalty function criteria method to identify the suit model. Forecast wind speed was derived from the model and thus wind power capacity was estimated by using kinetic energy formulation. Mean of annual data is 2.306 m/s and categorized as low wind speed with standard deviation 0.657 which means the wind speed was self-consistent. The suit model identified was Seasonal Autoregressive Integrated Moving Average (SARIMA) $(1,1,3) \times (1,1,1)$. Wind energy forecasted at Langkawi shows that the energy in Northeast .monsoon is highest with average of 9.61 Watts per second in a meter square

کلمات کلیدی:

Long-term Forecasting, SARIMA Model, Time Series, Wind Power and Wind Speed

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