

**Time Series Analysis using Vector Auto Regressive (VAR) Model of Wind  
Speeds in Bangui Bay and Selected Weather Variables in Laoag City**

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## ABSTRACT

Wind speed forecasting and modeling is very important in the wind energy industry starting from the feasibility stage to actual operation. It is very vital that it predicts wind turbine sizes, revenues, maintenance scheduling and actual operational control systems. This paper models and forecasts wind speeds using VAR and the data being gathered from the Northwind Bangui Bay Windfarm and the climatic values thru a meteorological station in Laoag City. Wind speeds and other weathers factors were found to be stationary using augmented dickey-fuller test. The use of VAR(3) model using daily time series data reveals that wind speeds on the turbines can be explained by its own wind speed, the wind speed in Laoag, Humidity, Temperature and Pressure. Results of the forecast error variance decomposition show that wind speed in Laoag, temperature and humidity are important determinants of the wind speeds in the turbines.