Malaysian peak daily load forecasting

ABSTRACT

Time series analysis has been applied intensively and sophisticatedly to model and forecast many problems in the biological, physical and environmental phenomena of interest. This fact accounts for the basic engineering problem in forecasting the daily peak system load to use time series analysis. ARMA and Regression with ARMA errors models are among the times series models considered. ANFIS, a hybrid model from neural network is also discussed as for comparison purposes. The main interest of the forecasts consists of three days up to seven days ahead predictions for daily data. The objective is to find an appropriate model for forecasting the Malaysian peak daily demand of electricity. The pure autoregressive model with an order 2 or AR (2) has the minimum AIC statistic value compared with other ARMA models. AR (2) model recorded the value for the mean absolute percentage error (MAPE) as 1.27% for the prediction of 3 days ahead from Jan 1 to 3, 2005. Besides AR(2) model, Regression model with ARMA errors and ANFIS were found to be among the best forecasting models for weekdays with MAPE value from 0.1% to 3%.