

## ***ABSTRACT***

The development of computing technology that has lead to soft computing technologies prompted researchers to try for finding an alternative method to predict the power load-based artificial intelligence (which is a popular and widely used: Adaptive Neural Network / Neural Network). Short term load forecasting has a very important role for the efficiency of electrical energy. Because of that reason, it will be forecasting for the 3 types of days, weekdays, weekends and national holidays by the method of Artificial Neural Network (ANN) algorithm using feedforward backpropagation, and the data used is real data throughout 2013 and 2014. The software for designing programs to use is Matlab. To obtain optimum results, the optimization is done on aspects of learning input number, learning rate, activation function, and the number of hidden layer. The research proves that the ANN (Artificial Neural Network) algorithm is very reliable in predicting short-term load forecasting instead of the Time Series and PLN's prediction, both in the type of weekdays, weekend days and national holidays.

Keywords: Forecasting, ANN, power loads