Abstract

The need for electricity reserves in the regions within a certain period of time is always different depending on the use of electricity in the area, so that the supply of electricity and the designation of the generators used are also different in each region according to their respective needs. The electricity load on the island of Bali has begun to increase, while the electricity supply is limited. In 2021 there will be an electricity load crisis on the island of Bali. The problem now is that electricity reserves in Bali will continue to decline, because the use of electricity loads increases while the supply remains constant. Therefore, in this study, we discuss the prediction of the electrical load on the island of Bali. By comparison of two methods, namely the LightGBM method and the XGBoost method. The LightGBM method can increase training speed and maintain relative accuracy. While the XGBoost method is a method with strong predictive power and an easy-to-implement approach, so it is widely used in machine learning solutions. Where this method will process historical data on electricity loads on the island of Bali from 2017 to 2021. The evaluation is carried out by comparing the LightGBM method and the XGBoost method which obtains the Correlation Coefficient, Root Mean Square Error (RMSE), and Mean Absolute Percentage Error (MAPE).). The XGBoost test results with an average Correlation Coefficient of 0.95, Mean Absolute Percentage Error (MAPE) 1.22, and Root Mean Square Error (RMSE) 8.67, while for the LightGBM test results with a Correlation Coefficient of 0.94, Mean Absolute Percentage Error (MAPE) 1.27, and Root Mean Square Error (RMSE) 9.08 from several scenarios. In terms of performance for power load datasets, XGBoost is better than LightGBM.

Keywords: ***Prediction, load electricity, time series, XGBoost, LightGBM.***