



INTISARI

Peramalan beban jangka pendek memiliki peranan penting dalam operasi sistem tenaga listrik. Peramalan beban jangka pendek berperan dalam keseimbangan antara daya beban listrik yang dinamis dan daya listrik dibangkitkan. Pada penelitian tugas akhir ini, metode *Long Short Term Memory* (LSTM) dan *Recurrent Neural Network* (RNN) digunakan dalam peramalan beban jangka pendek sistem tenaga listrik Jawa-Bali. Peforma kedua metode dibandingkan menggunakan *Mean Average Percentange Error* (MAPE) dan *Root Mean Squarred Error* (RMSE) untuk diperoleh metode peramalan terbaik yang akan digunakan sebagai dasar pengembangan operasi sistem tenaga listrik Jawa-Bali. Hasil yang diperoleh menunjukkan metode LSTM memiliki performa yang lebih baik daripada metode RNN dalam menghadapi kondisi *vanishing* dan *exploding gradient*. Model peramalan LSTM terbaik memiliki nilai MAPE 5,67% dan nilai RMSE 1683,09MW.

Kata kunci: Peramalan beban jangka pendek, LSTM, RNN, MAPE, RMSE



ABSTRACT

Short term load forecasting (STLF) plays an important role in power system operation. It used for manage power balance between the dynamic power demand and power supply. This research presents a Long Short Term Memory (LSTM) method and Recurrent Neural Network (RNN) method for short term load forecasting Jawa-Bali power system. We compare the performance of these models using Mean Average Percentage Error (MAPE) and Root Mean Squarred Error (RMSE) to choose the best models for development Jawa-Bali power system operationalization in the future. The result show LSTM method can forecast better than RNN method due to vanishing and exploding gradient condition. The best LSTM model has MAPE 5,67% and RMSE 1683,09MW.

Keywords: Short term load forecasting, LSTM, RNN, MAPE, RMSE