Prediksi Beban Listrik Menggunakan Pendekatan Model BiLSTM With Attention Berdasarkan Data Cuaca, Studi Kasus di Bali

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Abstract

Electricity companies rely on accurate electricity load forecasting to electrical energy efficiency. In this context, the weather plays a crucial role in influencing electricity load patterns. Therefore, it is imperative to explore the data and identify correlations between weather parameters and electricity load. This study presents a case study in Bali, where the Bidirectional LSTM With Attention model is proposed for weather- based electricity load forecasting. BiLSTM with Attention is a modified version of the LSTM model that includes an attention mechanism also forward and bakward layer LSTM. The BiLSTM-Attention model utilizes weather data to develop a machine learning model for load prediction. To attest a proposed model, the performance of the LSTM and BiLSTM models is also evaluated. Various weather parameters, such as temperature, solar radiation, wind speed, and rain rate, are examined to understand their impact on electricity load. Also user behavior are given as input feature. In certain conditions, the BiLSTM model outperforms other models in terms of correlation and error generated.

Keywords: electricity load, forecasting, weather, BiLSTM, attention