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Severity Prediction of Single Transmission Line Outage using Big Data and Machine Learning Technique

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Abstract

This article introduces the application of big data techniques to predict the severity condition of the system under Single Transmission Line Outage (STLO). The severity of the line is computed by using Line Voltage Stability Index (LVSI) under different load condition for ranking purpose. As a consequence, vast quantity of data is generated. The data obtained from the simulations for various scenarios is processed and applied to machine learning to predict severity condition of the line. The sever ity is predicted for various test systems to ascertain the suitability of the technique applied. The results of the study carried out on IEEE 30 Bus and UPSEB 75 Bus Indian System is presented with the necessary analysis. The MATLAB and the WEKA software are used for simulation purpose.

Keywords:

Contingency, Line Outage, Line Voltage Stability Index, Big Data, Data Analytics, Classification and Machine Learning

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