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FAULT ANALYSIS OF A TRANSMISSION LINE USING PSCAD/EMTDC

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Abstract

Electrical energy is most essential in day-to-day life. An electrical power system consists of generators, transformers, transmission and distribution lines etc. The electrical power is generated at generating stations or power stations. This generated power is stepped up and is transmitted through transmission lines. This transmitted power is stepped down at substations and is distributed to the consumers through feeders. During the transmission, faults can occur, which causes damage to the power system equipments. The system also loses its stability during fault conditions. If a fault occurs in an element of a power system, an automatic protective device is needed to isolate the faulty element as quickly as possible to keep the healthy section of the system in normal position. A protective scheme includes circuit breakers and protective relays to isolate the faulty section of the system from the healthy sections. These protective elements should be able to analyze the type of fault that occurred during abnormal conditions. In this, we have analyzed different types of faults over a transmission line placed between two substations of 100km length. The simulation studies is carried out using PSCAD/EMTDC software, and the results obtained is verified theoretically.

Keywords: Transmission Lines, Fault, Breaker, PSCAD/EMTDC