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Analysis on Protective Coordination between Over-Current Relays with Voltage Component in a Power Distribution System with SFCL

In this project, the Superconducting Fault Current Limiters (SFCLs) have been used as the advantageous protective devices to solve the increased fault current in a power distribution system due to its interconnected operation of the generators with larger capacities. However, the application of the SFCLs into this power distribution system causes either mal-operation or non-operation of the protective relays and affects their protection coordination. Therefore, the studies on the protection coordination of protective relays considering the application of SFCL are needed. In this paper, the Over-Current Relay (OCR) with the voltage component to minimize the influence of the SFCL on the operation of the OCR was proposed and the protection coordination between the OCRs with the voltage component due to the SFCL's application into the power distribution system was analyzed. From the analysis through the simulation, the effective selection for the voltage proportional coefficient of the voltage component of the OCRs was discussed to improve the protection coordination between the OCRs.

Domain: Power Systems / Distribution Systems

Technology: Electrical