

عنوان مقاله:

Investigation of the Operation of Active Superconducting Fault Current Limiters in Distribution Networks Connected to Microgrids

محل انتشار:

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خلاصه مقاله:

Increasing the penetration level of distributed generation (DG) units in radial power distribution systems can increase the short-circuit level in these networks, which can, in turn, have destructive effects such as exceeding the tolerable current of the equipment and disrupting the protective coordination in the network. The active superconducting fault current limiter (ASFCL) is a new device that can limit fault current using voltage series compensation. This paper discusses the modeling of ASFCL and control strategies including fault detection and converter performance in normal and fault modes. Initially, its performance in limiting the fault current is investigated by simulating a sample three-phase system with ASFCL. In the next step, three operating modes including normal mode, upstream fault mode, and downstream fault mode are proposed to achieve an adaptive FCL that solves these problems in grid-connected microgrids. The simulation results confirm the proper performance of the ASFCL modes in both fault .current limiting and protective coordination of overcurrent relays in the network

کلمات کلیدی:

Fault current limiter, Active superconducting current controller, Grid-connected microgrid, Protective coordination

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