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Power System Protection on Smart Grid Monitoring Faults in the Distribution Network via IoT

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New Frontiers in Cloud Computing and Internet of Things

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Abstract

Protection of equipment and the feeder when a large amount of electric power energy is generated in the distribution network becomes more complex which requires more attention for the safety of personnel and equipment. The focus

of this chapter is on the protection system of a grid designed to be integrated into the smart environment-based Internet-of-Things technologies. The purpose of this chapter is to monitor the effect of faults on the overcurrent protection scheme of the distribution network and prevent the network by isolating the affected part of the network via the Internet for the safety of equipment and personnel. The impact of faults at the different buses of the distribution network, the zoning of faults, and the coordination of the protection relay are well observed by carrying out load flow analysis, and faults are injected at different buses of the system. The analysis of the result revealed at the end of this chapter how the network responds to the monitoring of faults through the Internet. This work helps to attain the United Nation's Sustainability Development Goal (SDG) – 7 and affordable and clean energy in developing countries, especially in sub-Saharan Africa.

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