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Comparative Analysis of Traditional over Current Relay and Adaptive over Current Relay used for Distribution System

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Abstract— These days' electrical demand has been continuously increasing in most electric utilities therefore attention to distributed generation systems (DG, PV, wind) with renewable energies operated parallel with utility power systems is an emerging source for supplying power to consumers not only because of its economic aspects but also environmental protection. The growth of Distributed Generation (DG) has brought about many advantages but has also created issues and challenges that demand prompt resolution utilizing tried-and-true methods.

This paper examines how DG affects fault current and focuses to realize the use of adaptive over current protection that can adapt the changes in the fault current due to DG source connected in the system automatically and amend the relay setting current with respect to fault current and sort of fault occurred in the system so that relay can be operated correctly. The superiority of adaptive current protection over traditional current protection has been demonstrated through mathematical study and simulation.

Keywords—Distributed Generation; Adaptive Over Current Protection, Relay Setting Current