

MODELING AND SIMULATION OF PROTECTIVE DEVICES FOR DISTRIBUTED GENERATION APPLICATIONS

M. M. El-Saadawi
Dept. of Electrical Engineering
Faculty of Engineering
Mansoura University, 35516, Egypt
E-mail: m_saadawi@mans.edu.eg

Keywords: Distributed Generation; Protection; Recloser; Fuse; Coordination.

ABSTRACT

The increasing penetration of distributed generation (DG) added to the distribution power system creates new technical and economical challenges. It will be necessary to investigate many issues concerning these challenges. In terms of physical integration, protection is one important topic of those challenges. To bring accurate calculation of DG regarding protection level; design, implementation and validation of new models for protective devices has to be investigated.

In this paper, new Matlab Simulink models of fuse and recloser are presented. To verify that the new proposed models are working well, the overcurrent protection of a radial feeder using fuses and reclosers is tested and analyzed before and after integrating a DG source. A detailed simulation is performed to study the impact of DG integration to the system from the prospective of protection devices coordination. The results show that with the two new proposed models, the simulation working well and the known effects and impacts of DG with the grid are valid.