

A Group Setting of IED in Microgrid Protection Management System

Authors : Jyh-Cherng Gu, Ming-Ta Yang, Chao-Fong Yan, Hsin-Yung Chung, Yung-Ruei Chang, Yih-Der Lee, Chen-Min Chan, Chia-Hao Hsu

Abstract : There are a number of distributed generations (DGs) installed in microgrid, which may have diverse path and direction of power flow or fault current. The overcurrent protection scheme for the traditional radial type distribution system will no longer meet the needs of microgrid protection. Integrating the intelligent electronic device (IED) and a supervisory control and data acquisition (SCADA) with IEC 61850 communication protocol, the paper proposes a microgrid protection management system (MPMS) to protect power system from the fault. In the proposed method, the MPMS performs logic programming of each IED to coordinate their tripping sequence. The GOOSE message defined in IEC 61850 is used as the transmission information medium among IEDs. Moreover, to cope with the difference in fault current of microgrid between grid-connected mode and islanded mode, the proposed MPMS applies the group setting feature of IED to protect system and robust adaptability. Once the microgrid topology varies, the MPMS will recalculate the fault current and update the group setting of IED. Provided there is a fault, IEDs will isolate the fault at once. Finally, the Matlab/Simulink and Elipse Power Studio software are used to simulate and demonstrate the feasibility of the proposed method.

Keywords : IEC 61850, IED, group Setting, microgrid

Conference Title : ICECECE 2015 : International Conference on Electrical, Computer, Electronics and Communication Engineering

Conference Location : Osaka, Japan

Conference Dates : October 08-09, 2015