

## **A Multi Agent Based Protection Scheme for Smart Distribution Network in Presence of Distributed Energy Resources**

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**Abstract :** Conventional electric distribution systems are radial in nature, supplied at one end through a main source. These networks generally have a simple protection system usually implemented using fuses, re-closers, and over-current relays. Recently, great attention has been paid to applying Distributed energy resources (DERs) throughout electric distribution systems. Presence of such generation in a network leads to losing coordination of protection devices. Therefore, it is desired to develop an algorithm which is capable of protecting distribution systems that include DER. On the other hand smart grid brings opportunities to the power system. Fast advancement in communication and measurement techniques accelerates the development of multi agent system (MAS). So in this paper, a new approach for the protection of distribution networks in the presence of DERs is presented base on MAS. The proposed scheme has been implemented on a sample 27-bus distribution network.

**Keywords :** distributed energy resource, distribution network, protection, smart grid, multi agent system

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