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(57) Abstract :

DYNAMIC FUZZY LEARNING BASED HYBRID GWO-CSA FOR OPTIMAL PLANNING OF PV, BESS AND DSTATCOM WITH NETWORK RECONFIGURATION A present invention relates to a system of dynamic fuzzy learning based hybrid GWO-CSA for optimal planning of PV, BESS and DSTATCOM with network reconfiguration. The Photovoltaic(PV)- Distributed Generators (DG) sources, DSTATCOM, and BESS devices with reconfiguration in the radial distribution network (RDN) is concurrently installed to accommodate, effect of both the solar irradiance and load demand uncertainties. The dynamic fuzzy learning-based hybrid Grey-Wolf optimizer and crow search algorithm (GWO-CSA) are configured to resolve the optimal planning of Photovoltaic, DSTATCOM and BESS with network reconfiguration operation during uncertainties of solar irradiance and load demand. Further, considering the stochastic nature of solar irradiance and variations, when solar energy is inadequate, BESS acts as backup energy storage device to meet essential load requirements. Network reconfiguration is to reduce power loss by changing the network tie switches using optimization algorithm. The claimed system is to reduce the total power loss, enhance the voltage profile, improve the voltage stability index, and perform network reliability analysis. The beneficial effect of the claimed method is validated on Standard IEEE 69 and Standard 118 bus systems.

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