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(57) Abstract :

OPTIMAL PLANNING OF PV SOURCES AND D-STATCOM DEVICES WITH NETWORK RECONFIGURATION EMPLOYING MODIFIED ANT LION OPTIMIZER The present invention relates to an optimal planning of PV sources and D-STATCOM devices with network reconfiguration employing modified ant lion optimizer. The said invention emphasizes a meta-heuristic modified ant lion optimizer (MALO) optimization approach for the simultaneous utilization of DSTATCOM devices and distributed photovoltaic (PV) sources with network reconfiguration in a radial power distribution scheme. The combined DSTATCOM device and distributed PV source are allocated with network reconfiguration for considering penetration levels of 0.25, 0.5, 0.75, and 1.0 in radial distribution topology by using MALO and BAT algorithms. Various Distributed Generators (DG) such as single/multiple unit types are configured for optimization. The modified ant lion optimizer is configured to minimize power losses, improving voltage stability to integrate the DSTATCOM and PV into the system for optimal placement and sizing. The MALO and BAT technique is applied to enhance network reconfiguration operation by using MATLAB software 2022. The direct load flow algorithm is configured to calculate base case power flows, power losses, voltage values in the power distribution scheme. The claimed invention reduces network total power losses, enhance the voltage magnitude profile at all buses.

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