

عنوان مقاله:

Voltage and reactive power control in a distribution system using hybrid SA-DBPSO algorithm

محل انتشار:

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خلاصه مقاله:

Voltage and reactive power control in distribution systems includes the control of devices such as tap changer, shunt capacitor and feeder capacitors. The main objectives of this problem are defined as minimizing the power loss, reducing the reactive power transfer of the substation transformer and improving of the voltage profile. Control variables include the state of capacitors positions and main transformer under load tap changer position. Furthermore, by changing the capacitors locations in the network per year, the methods are improved in this paper. In order to solve the optimization problem, simulated annealing algorithm is used to replace the capacitors, and discrete binary particle swarm optimization algorithm is implemented to solve volt/var problem in any replacement. To demonstrate the effectiveness of this method, the IEEE 69 bus distribution test system, including one new shunt capacitor and ten existing feeder capacitors in some installable feeders is used.

کلمات کلیدی:

Distribution system, particle swarm optimization, voltage and reactive power control

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