Abstract

This paper puts forward the implementation of multiagent based PSO algorithms (TDLSMADSO & CLSMAPSO) to obtain the optimal power flows by optimally placing SVC devices. The static var compensator (SVC) is modeled using susceptance model with modifications in the Y bus of the Newton Raphson Algorithm. The constraints related to violation limits, minimization of voltage stability index, and line loss are dealt using penalty factor approach. The new multi agent based cubic lattice and two dimensional lattice structured based PSO algorithms were considered for optimizing power flows while satisfying all the constraints mentioned above. These algorithms were tested on IEEE 30 and IEEE 14 bus systems to identify the suitable location, its susceptance value and firing angle. The results obtained were quite encouraging and will be useful in electrical restructuring.

References

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Index Terms

Computer Science

Artificial Intelligence
Keywords

Multi agent systems  Optimization techniques  Particle swarm optimization  Optimal power flows  security constraints