

MULTI-OBJECTIVE VAR PLANNING WITH SVC USING PARTICLE SWARM OPTIMIZATION TECHNIQUES IN POWER SYSTEM NETWORKS

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ABSTRACT

This paper presents a novel multi-objective evolutionary computational approach such as Particle Swarm Optimization (PSO) technique proposed for optimal placement of Static Var Compensator (SVC) from the different performance parameters of power systems viewpoint such as minimize the active power losses and cost of system, improve the voltage profile, increase the loadability of systems, and provide the reactive power support in emergency case such fault occur or suddenly change in field excitation of alternators, or suddenly load increased in power systems. The proposed technique such as PSO is also applicable for optimal placement of other FACTS controllers such as TCSC, SSSC, STATCOM, UPFC, GUPFC, and IPFC in similar fashion from different performance parameters viewpoints. Simulations are proposed to be performed in the next paper on IEEE-9, and IEEE-59, and IEEE-14 bus systems for optimal location of FACTS devices and the results obtained are encouraging and will be useful in electrical restructuring.

Index Terms - Flexible AC Transmission Systems (FACTS), FACTS Controllers, SVC, Particle Swarm Optimization (PSO) technique, Power Systems.