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PERFORMANCE IMPROVEMENT OF TRANSMISSION SYSTEM USING UPFC BY GA AND PSO ALGORITHMS

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ABSTRACT

Power losses and voltage instability are major problems in present power systems. It has become more complex day by day due to less security and reliability. Flexible AC transmission systems (FACTS) controllers have been mainly used for solving various power system steady state control problems. Flexible AC transmission systems or FACTS are devices which allow the flexible and dynamic control of power systems and enhancement of system stability using FACTS controllers. Based on PSO algorithm is an effective method for finding the optimal choice and location of FACTS controllers. It also increases load ability of the line and minimizes losses. This paper presents comparative study of GA and PSO algorithms for one of the FACTS controller i.e., UPFC device. The suggested algorithm has been applied to IEEE-30 bus system.

KEYWORDS: Voltage Stability, Flexible AC Transmission Systems (FACTS), Unified Power Flow Controller (UPFC), Genetic Algorithm (GA), Particle Swarm Optimization (PSO)