

SECURITY CONSTRAINED ECONOMIC LOAD DISPATCH USING PARTICLE SWARM OPTIMIZATION EMBEDDED WITH EVOLUTIONARY PROGRAMMING TECHNIQUES SUITABLE FOR UTILITY SYSTEM

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ABSTRACT

This paper presents a new optimization approach to solve the Economic Load Dispatch (ELD) problem with security constraints such as line flow constraints and bus voltage limits. The proposed approach employs conventional Particle Swarm Optimization Embedded with Evolutionary Programming (PSO-EP) techniques. So that positive features of both techniques are exploited. Different Evolutionary Programming (EP) techniques, conventional Particle Swarm Optimization (PSO) and the proposed PSO-EP have been tested on IEEE-14 bus, 30-bus, 118-bus and 66-bus Indian utility system. The proposed method combines the advantages of EP and PSO techniques to solve the ELD problem with security constraints. The solution obtained is quite encouraging, and it has stable convergence characteristics. The proposed PSO-EP method is also tested on a practical Indian utility system and proved to be suitable for practical and large-scale systems.