Abstract

In this paper, Generator Maintenance Scheduling (GMS) in a vertically integrated power system is considered. The objective of the GMS problem is to find the particular time interval for maintenance of power generating units with an intention of maximizing the security of the power system. In this paper, scheduling of generating units for planned preventive maintenance is formulated as a mixed integer optimization problem by considering maximizing the average value of reliability index subject to a set of nonlinear constraints. Integer Coded Differential Evolution (ICDE) algorithm is developed to solve the GMS problem. The Lagrange Multiplier method is used to find the overall production cost for the maintenance schedule that is obtained using ICDE algorithm. To demonstrate the effectiveness of the proposed approach, two test systems are considered and are validated by comparing results obtained with that of Integer Coded Particle Swarm Optimization. The test results reveal the capability of the proposed ICDE algorithm in finding optimal maintenance schedule for the generator maintenance scheduling problem.
References

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Index Terms

Computer Science Algorithms

Keywords

Generator Maintenance Scheduling, Reliability Maximization, Integer Coded Differential Evolution, Optimal Maintenance Schedule.