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Modified Bat Algorithm for Economic Load Dispatch Problem

Authors : Daljinder Singh, J.S.Dhillon, Balraj Singh

Abstract : According to no free lunch theorem, a single search technique cannot perform best in all conditions. Optimization method can be attractive choice to solve optimization problem that may have exclusive advantages like robust and reliable performance, global search capability, little information requirement, ease of implementation, parallelism, no requirement of differentiable and continuous objective function. In order to synergize between exploration and exploitation and to further enhance the performance of Bat algorithm, the paper proposed a modified bat algorithm that adds additional search procedure based on bat's previous experience. The proposed algorithm is used for solving the economic load dispatch (ELD) problem. The practical constraint such valve-point loading along with power balance constraints and generator limit are undertaken. To take care of power demand constraint variable elimination method is exploited. The proposed algorithm is tested on various ELD problems. The results obtained show that the proposed algorithm is capable of performing better in majority of ELD problems considered and is at par with existing algorithms for some of problems.

Keywords : bat algorithm, economic load dispatch, penalty method, variable elimination method
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