Abstract

Economic load dispatch (ELD) is an important optimization task in power system. It is the process of allocating generation among the committed units such that the constraints imposed are satisfied and the energy requirements are minimized. There are three criteria in solving the economic load dispatch problem. They are minimizing the total generator operating cost, total emission cost and scheduling the generator units. Each of the above criteria is used with the following constraints such as power balance constraints, generator limit constraints, valve point coefficients and emission constraints. In this paper the Improved Tabu Search (ITS) solution to economic dispatch problem is very useful when addressing heavily constrained optimization problem in terms of solution accuracy. Results obtained from this technique clearly demonstrate that the algorithm is more efficient in terms of number of evolution to reach the global optimum point. The result also shows that the solution method is practical and valid for real time applications. In this paper an Improved Tabu Search (ITS) algorithm solves economic load dispatch (ELD) power system problem of three generator system, six generator system with emission constraints and thirteen generator system with valve point effect loading.. The Improved Tabu Search (ITS) algorithm was used to check the
validity, quality of the solution and the results are tabulated. The validity and quality of the solution obtained using proposed Improved Tabu Search (ITS) based economic load dispatch method are checked and compared with Hopfield Neural Network (HNN), Genetic Algorithm (GA), Tabu Search Algorithm (TSA) and Distributed Tabu Search Algorithm (DTSA).

Reference


Index Terms

Electrical Power Systems

Key words

valve-point effect Economic dispatch
Emission constraint

Improved Tabu search