Combined economic and emission dispatch (CEED) is a multi-objective optimization problem aim of which is the simultaneous minimization of operating cost and pollutant emission by allocating generation among thermal units of an electric power system. Objective functions are conflicted and several equality and inequality constraints must be satisfied. This paper uses two bat algorithm based approaches for solving CEED. One of them hybridizes bat algorithm with differential evolution strategies while the other one inserts a mutation operator into the original bat algorithm. Both methods are applied to a 10-generator sample power system. Numerical results from the proposed algorithms are compared to those obtained by other techniques in recent literature.


Index Terms

Computer Science

Algorithms

Keywords

combined economic and emission dispatch; hybrid bat algorithm; mutation operator; multi-objective optimization