Abstract

Integrating wind power with any other energy source in power system has many operational and scheduling complications because of its inconsistent nature in the process of wind forecasting. In this paper, a new meta-heuristic optimization method named Grey Wolf Optimization algorithm is involved for solving the problem of generation scheduling (GS) to obtain best possible solution in power systems taking into account the load balance, reserve requirement, wind power availability constraints, inequality and equality constraints. The proposed GWO method is applied to a test system involves 40 conventional units and 2 wind farms. The system performance of GWO algorithm is established by evaluating the results obtained for different number of trails and various iterations for five different populations. Calculation of the solution for different populations in the system discloses that the best optimal schedule achieved by Grey Wolf Optimization algorithm.


32. Nomeclature
33. FE(r) -Objective function valuation at trail r
34.

Index Terms

Computer Science Algorithms

Keywords

Generation scheduling, Grey wolf optimization, Total generation cost reduction, Wind power availability.