Abstract

Transmission congestion management is one of the critical and important tasks of the system operator. Transmission line congestion is considered to be more important as it may initiate the cascading outages which forces the system to collapse. This paper presents a transmission congestion management (CM) algorithm by optimal rescheduling of active powers of generators using firefly (FF) algorithm. All the generators in the system need not take part in CM. Generator sensitivity to the congested line and the cost of generation are considered while rescheduling the generators to alleviate congestion. In this paper an efficient FF algorithm is used for solving CM problem. The proposed method has been tested on IEEE 30 bus system and the results of various case studies have been compared with that of RCGA & SA methods. Results prove that FF algorithm is indeed capable of obtaining higher quality solutions for the CM problem.

References

- Kumar, S. C. Srivastava and S. N. Singh, 2005, &quot;Congestion management in competitive power market: A bibliographical survey&quot;, Electric Power Systems Research,
Transmission Congestion Management in Restructured Power System using Firefly Algorithm


Index Terms

Computer Science

Power Systems
Keywords
Deregulation  generator sensitivities  simulated annealing  congestion management  firefly algorithm
real coded genetic algorithm.