Abstract

Optimal power flow (OPF) is a major task in power system economics and operation. In OPF, power real power outputs from the generators of a power system are so adjusted that the total production cost is minimum. Security constraint OPF (SC-OPF) is minimizing the cost keeping line flows within their respective limits for security reasons. Real power output from generators, generator bus voltage magnitudes, var outputs from shunt compensators and transformer tap settings are controlled for optimizing the total fuel cost in this OPF problem. This proposed work considers the bio inspired fruit fly algorithm (FFA) for optimally selecting the values for control variables. The proposed algorithm is simple, with less number of parameters and easy to implement. The performance of this algorithm in OPF task is tested on IEEE 30 bus test system. Numerical results are compared to literature results and found to be improved.

References

Application of Fruit Fly Algorithm for Security Constrained Optimal Power Flow Problem

Transactions on power apparatus and systems 10 (1968): 1866-1876.


Index Terms

Computer Science

Algorithms
Keywords

Optimal power flow, security constraint optimal power flow, bio inspired algorithm, line flow limit.