

Thitiporn Phongkidakarn 2013: Economic Dispatch using Cuckoo Search Algorithm.
Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering,
Department of Electrical Engineering. Thesis Advisor: Assistant Professor
Dulpichet Rerkpreedapong, Ph.D. 105 pages.

This thesis presents the Cuckoo Search (CS), one of the newest optimization techniques, to solve economic dispatch problems. This search algorithm is based on the obligate brood parasitic behaviour of some cuckoo species and the characteristics of Lévy Flights. Cuckoo Search has fewer parameters to be adjusted and the number of cycles or time to compute than the other methods. Also in this thesis, the results of two case studies are compared with those obtained from the particle swarm optimization (PSO). The first case study uses a smooth cost function with a lossless power system. The second case study uses a non-smooth cost function due to valve point effects with taking into account losses of the system. Finally the results show that the Cuckoo Search has less total fuel cost and the number of cycles or time of computation than the particle swarm optimization.

Student's signature

Thesis Advisor's signature