CHAOTIC ANT SWARM OPTIMIZATION FOR ECONOMIC DISPATCH CONSIDERING TRANSMISSION LOSSES

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ABSTRACT

The economic dispatch (ED) problem is one of the most important operational functions of the modern day energy management system. The purpose of the ED is to find the optimum generation among the existing units, such that the total generation cost is minimized while simultaneously satisfying the power balance equations and various other constraints in the system. This paper presents chaotic ant swarm optimization (CASO) for solving ED with the transmission losses problems in order to minimize the total generation cost while satisfying all generation constraint. This algorithm combines with the chaotic and self-organization behaviour ants in the foraging process. The proposed method is tested on six generation unit systems and the results show that it is able to solve ED problem. CASO algorithm used in this study was implemented by using MATLAB 7.5.0 (R2007b). Results demonstrate that the method can obtain feasible and effective solution.

TABLE OF CONTENT