

عنوان مقاله:

Woodpecker Mating Algorithm for Optimal Economic Load Dispatch in a Power System with Conventional Generators

محل انتشار:

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خلاصه مقاله:

The Economic Dispatch (ED) is one of the most important optimization problems in power systems the ultimate goal of the ED is to minimize the cost of operations in a power generation. In this paper, the Woodpecker Mating Algorithm (WMA) is used to solve the ED problem considering the nonlinear properties of generators such as valve point effects (VPE), prohibited operating zones (POZ), ramp rate limits, multiple fuel options, and transmission loss. The WMA algorithm is a novel metaheuristic algorithm inspired by the mating behavior of woodpeckers and sound intensity (a physical quantity). The WMA is implemented on six test systems of different operational dimensions and characteristics to show its capacity for solving the ED problem. The results are compared with the latest and most efficient methods introduced in the literature. Proving the efficiency of the WMA to solve the ED problem, simulation results are promising and offer the optimal fuel cost of production.

کلمات کلیدی:

Woodpecker Mating Algorithm, Economic dispatch, Valve Point Effects, Nonlinear optimization

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