GREY WOLVES OPTIMIZER APPROACH FOR MAXIMIZING SOCIAL WELFARE BENEFIT IN COMPETITIVE ELECTRICITY MARKETS

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ABSTRACT

In traditional power system industry, economic dispatch approach is adapted in the system operation and planning with the objective to minimize the cost. With the introduction of liberalized energy market, this objective has diverged to maximize customer utility, minimize the customer discomfort and maximize social welfare benefits. This study presents the solution to unit commitment problem in order to maximize social welfare benefits in competitive electricity market. Grey Wolf Optimization (GWO) method is used to solve this problem. A system consists of seven hydro units and four thermal units is tested with the proposed method. The results show that the maximization of social welfare benefit can be obtained and the opportunity cost for generator can be determined.

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