

Cohesive meta-heuristic approach for solving combined economic and emission load dispatch

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Abstract:

This paper proposes a new approach of solving optimization problem especially in combined economic emission load dispatch (CEELD) called cohesive meta-heuristic. CEELD is one of the challenging power system operation problems which considering the minimization of cost of power generation as well as emission level simultaneously. These two objectives are contrary each other which is difficult to solve and for this paper, these two objectives are convert into a single objective by introducing weightage and cost penalty factor. Cohesive meta-heuristic on the other hand is the new terminology of cooperation of existing meta-heuristic algorithms to obtain a better solution. In order to show the effectiveness of proposed method, 40-units generators system will be utilized and compared with the other methods.

Keywords: Barnacles Mating Optimizer; Cohesive meta-heuristic; Combined Economic & Emission Dispatch; Grey Wolves Optimizer; Moth Flame Optimizer.

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