

Title: Solving Economic Load Dispatch: A Hybrid Approach Integrating Particle Swarm Optimization and Teaching Learning based Optimization(Conference Paper)

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Abstract

optimization (PSO), and a hybrid algorithm that is a combination of PSO and TLBO. In comparison to PSO and TLBO, hybrid PSO-TLBO efficiently optimizes fuel cost, incremental cost, and power loss. Furthermore, an increase in load demand will result in an increase in the system's costs and losses. On the other hand, by increasing the step size of the TLBO method, Power generation must be increased in order to meet demand while minimizing operating costs. In order to reduce these operational costs, such as fuel costs and incremental costs, it is necessary to solve the economic load dispatch (ELD) problem, which requires an optimization process. The purpose of this research is to compare various parameters of a standard IEEE 30 bus system using metaheuristic algorithms, which include teaching learning-based optimization (TLBO), particle swarm the total fuel cost and power loss will decrease. However, it may occasionally cause the algorithm to overreach and miss the desired outcome if the step size is not within the standard value. Moreover, the hybrid PSO-TLBO algorithm is intelligent enough to reduce intervals compared to the PSO and TLBO algorithms. © 2024 IEEE.

Author keywords

Economic Load Dispatch (ELD) Fuel Cost (FC) Incremental Cost (IC) Particle Swarm Optimization (PSO) Teaching Learning Based Optimization (TLBO)

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