Mean Variance Mapping Optimization for Solving the Economic Load Dispatch Problem

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Abstract

The mean variance mapping optimization technique (MVMO) is employed in this paper to solve the economic dispatch problem (ED) in power systems. The effectiveness of the proposed technique has been verified on three different case studies to solve the ED problem of thermal power units taking into account the transmission losses and other constraints which include generation limits, ramp rate limits, prohibited operating zones and valve-point loading. The obtained results have demonstrated that MVMO is a promising approach for solving the optimization problems in practical power systems. Moreover, the number of control parameters in MVMO to be tuned is less than that in most of other metaheuristic technique which makes it simpler for solving non-convex optimization problems. Solution quality, convergence speed and robustness of MVMO technique has been compared with those of formerly proposed techniques.