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Multi-objective Economic Emission Dispatch Solution Using Dance Bee Colony with Dynamic Step Size

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Abstract

Energy planning considering environment aspect is a vital research area for power system operation and control. This paper introduces an efficient variant namely dance bee colony with dynamic step size adjustment for solving the multi objective economic emission dispatch considering valve point effects. The particularity and robustness of the proposed algorithm is validated on two practical test systems IEEE 30-Bus and to 40 units considering valve point effect and power losses. Results compared to many recent competitive methods confirm the efficiency of the proposed method in term of solution quality and convergence characteristics.

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Keywords: Multi Objective, Dance Bee colony, Environmental/economic dispatch, fuel cost, Emission, Step size.

Nomenclature

ED	Economic Dispatch
DBC	Dancing Bee colony
Cost	fuel cost
Emi	Emission

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