

An Efficient Stud Krill Herd Framework for Solving Non-Convex Economic Dispatch Problem

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Abstract : The problem of economic dispatch (ED) is the basic problem of power framework, its main goal is to find the most favorable generation dispatch to generate each unit, reduce the whole power generation cost, and meet all system limitations. A heuristic algorithm, recently developed called Stud Krill Herd (SKH), has been employed in this paper to treat non-convex ED problems. The proposed KH has been modified using Stud selection and crossover (SSC) operator, to enhance the solution quality and avoid local optima. We are demonstrated SKH effects in two case study systems composed of 13-unit and 40-unit test systems to verify its performance and applicability in solving the ED problems. In the above systems, SKH can successfully obtain the best fuel generator and distribute the load requirements for the online generators. The results showed that the use of the proposed SKH method could reduce the total cost of generation and optimize the fulfillment of the load requirements.

Keywords : stud krill herd, economic dispatch, crossover, stud selection, valve-point effect

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