Abstract

The economic emission dispatch (EED) assumes a lot of significance to meet the clean energy requirements of the society, while at the same time minimising the cost of generation. The solution schemes in an attempt to arrive at the global best through the use of evolutionary algorithms are however inadequate to cater to problems of large size. The search based EED approaches are computationally inefficient particularly for problems with large number of decision variables. This paper attempts to develop a new SA based modified approach with a single decision variable to solve the EED problem. The philosophy involves the introduction of a new decision variable through a prudent mathematical transformation of the relation between the decision variable and the optimal generations. It thus yields a reduction in the number of problem variables and contributes to realistically enhance the performance of the existing heuristic strategies. The feasibility of the proposed approach is evaluated through two
test systems and the results are compared with the available methods to highlight its suitability for online applications.

**Reference**

Research, 77, 1654-64.

Index Terms
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