Optimal Placement of Capacitors for Get the Best Total Generation Cost by Genetic Algorithm

Authors : M.R. Tabatabaei, A. Vaseghi Ardekani, A.R. Rajabi, N. Javidtash, H. Sedaghati

Abstract : Economic Dispatch(ED) is one of the most challenging problems of power system since it is difficult to determine the optimum generation scheduling to meet the particular load demand with the minimum fuel costs while all constraints are satisfied. The objective of the Economic Dispatch Problems (EDPs) of electric power generation is to schedule the committed generating units outputs so as to meet the required load demand at minimum operating cost while satisfying all units and system equality and inequality constraints. In this paper, an efficient and practical steady-state genetic algorithm (SSGAs) has been proposed for solving the economic dispatch problem. The objective is to minimize the total generation fuel cost and keep the power flows within the security limits. To achieve that, the present work is developed to determine the optimal location and size of capacitors in transmission power system where, the Participation Factor Algorithm and the Steady State Genetic Algorithm are proposed to select the best locations for the capacitors and determine the optimal size for them.

Keywords : Economic Dispatch, Lagrange, Capacitors Placement, Losses Reduction, Genetic Algorithm.
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