

Article Abstract

Title:	Integrating genetic algorithms and tabu search for unit commitment problem
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Abstract:	Optimization is the art of obtaining optimum result under given circumstances. In design, construction and maintenance of any engineering system, Engineers have to take many technological and managerial decisions at several stages. The ultimate goal of all such decisions is to either maximize the desired benefit or to minimize the effort or the cost required. This paper shows a memetic algorithm, a real coded Genetic Algorithm combined with local search, synergistically combined with Tabu Search is effective and efficient for solving large Unit Commitment (UC) problems in electrical power systems. A set of feasible generator schedule is first formulated by real coded genetic algorithm method. Then these pre-committed schedules are optimized by ordinary local search and tabu search. The tabu search based hybrid GT algorithm was tested on reported UC problems previously addressed by some existing techniques such as Dynamic Programming (DP), and Simple Genetic Algorithms. Numerical results for systems up to 36 units are given and commented on. A comprehensive unit commitment software package is developed. The future scope of the paper using the proposed method finds a place in the conclusion.
Keywords:	Unit commitment, economic load dispatch, memetic algorithm, hybrid GT algorithm, local search, tabu search, combinatorial optimization