

A Practical Software Tool for Generator Maintenance, Scheduling and Dispatching

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ABSTRACT

Preventive maintenance scheduling and economic dispatch, have found prominent positions in the operation of power systems. A new heuristic algorithm based on the tabu search has been proposed as a solution method to the maintenance problem. This algorithm seeks to satisfy an objective function that can either maximize or minimize spinning reserve capacity of the power system over the entire planning horizon while satisfying constraints. Maximizing the reserve capacity provides a method of maintaining and increasing overall system reliability. This paper presents a PC based Windows application software tool for production of optimized maintenance schedules, performing economic dispatch, predicting actual dates for long-term maintenance scheduling and querying the current status of a generating unit from data files. The Power Generation Company of Trinidad and Tobago has an installed capacity of 1159MW with 21 generating units. Using this company as the testing ground the software tool was developed and implemented in MATLAB 6.5 providing user-friendly Graphical User Interfaces (G.U.I.s). Numerical results have been obtained and the effectiveness of this developed software has been demonstrated. Selected results of the software are presented in this paper for illustration purposes.

Keywords: Preventative maintenance scheduling, economic dispatch, tabu search, heuristic algorithm, software tool