Hydro Thermal Coordination using Particle Swarm Optimization

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ABSTRACT

This thesis presents a solution for solving Hydrothermal Coordination (HTC) problems using Particle Swarm Optimization (PSO). Scheduling the Hydro and Thermal energy in the most economic manner has become an important task in modern power systems because of the increasing competition in power market. An important objective in the operation of such a power system is to generate and transmit power to meet the system load demand at minimum fuel cost by an optimal mix of various types of plants. Particle swarm optimization (PSO) algorithm is developed to give the economical cost for hydrothermal generation while fulfill the constraint of thermal and hydro unit. Total generation must meet the demand of the power system. The algorithm is developed using MATLAB program and tested on a system comprising or the one thermal unit and one hydro unit. The results are also compared with those obtained by using Lagrange Multiplier method. This comparison shows that PSO is able give better cost in solving HTC problem.

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