THE USE OF CALCULUS OF VARIATIONS AND THE HAN-POWELL METHOD IN SOLVING THE PROBLEM OF HYDROTHERMAL COORDINATION AND THE OPTIMAL LOAD FLOW IN A HYDROTHERMAL SYSTEM

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Abstract:

In this paper we solve together the hydro-thermal scheduling and the optimal load flow problem. The system considered contains several chains of hydro-plants of variable head on different streams and the delay transport is considered. The problem of hydro-thermal coordination is studied by means of Euler's equation under certain restrictions formulated in the form of inequalities and expressed via a penalization function. A version of quasi-Newton method is used to construct the algorithm of numerical resolution (LSB). The Han-Powell's method is used for the optimization of the load flow. The results obtained contribute to the problem of the initial hydro-thermal coordination.

Keywords:

Hydro-thermal system, Optimization, Load flow, Euler's equation, Penalization function, Han-Powell's method.