## Bid-based dispatch of hydrothermal systems in competitive markets

P.R. Lino; L.A. Nobrega Barroso; M. V. Veiga Pereira; R. Kelman; M.H. C. Fampa

## Abstract-

The objective of this work is to investigate possible hydro-scheduling inefficiencies under a bidding scheme. It will be shown that the market-based dispatch of hydro-plants, under a perfect competitive market, converges to its least-cost dispatch. Besides, it will be shown that the usual spot payment scheme does not provide the correct incentive for upstream reservoirs to regulate thus causing operating downstream production, an distortion. The implementation of a Wholesale Water Market is proposed for trading stored water and so to correct such distortion. Case studies will be presented, with data taken from the Brazilian System.

Index Terms- bid-based dispatch, hydrothermal scheduling, stochastic optimization, power system economics, Wholesale Water Market

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