

Title: Scheduling of a hydro producer considering head-dependency, price scenarios and risk-aversion

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Abstract: In this paper, a mixed-integer quadratic programming approach is proposed for the short-term hydro scheduling problem, considering head-dependency, discontinuous operating regions and discharge ramping constraints. As new contributions to earlier studies, market uncertainty is introduced in the model via price scenarios, and risk aversion is also incorporated by limiting the volatility of the expected profit through the conditional value-at-risk. Our approach has been applied successfully to solve a case Study based on one of the main Portuguese cascaded hydro systems, requiring a negligible computational time. (C) 2011 Elsevier Ltd. All rights reserved.

Author Keywords: Hydro Scheduling; Mixed-Integer Quadratic Programming; Head-Dependency; Price Scenarios; Risk-Aversion

KeyWords Plus: Electricity Market; Differential Evolution; Neural-Network; Term; Algorithm; Systems; model; Flow

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