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Abstract: This paper is on the problem of short-term hydro scheduling, particularly concerning head-dependent reservoirs under competitive environment. We propose a new nonlinear optimization method to consider hydroelectric power generation as a function of water discharge and also of the head. Head-dependency is considered on short-term hydro scheduling in order to obtain more realistic and feasible results. The proposed method has been applied successfully to solve a case study based on one of the main Portuguese cascaded hydro systems, providing a higher profit at a negligible additional computation time in comparison with a linear optimization method that ignores head-dependency. Copyright (C) 2008 John Wiley & Sons, Ltd.

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