

A medium-term integrated risk management model for a hydrothermal generation company

J. Cabero Borrós; Á. Baíllo Moreno; S. Cerisola López de Haro; M. Ventosa Rodríguez; A. García Alcalde; F. Perán Montero; G. Relaño Cobián

Abstract-

This paper presents a methodology to manage the market risk faced by a hydrothermal generation company in the medium-term (one year). This risk is due to uncertainty in fuel prices, power demand, water inflows, and electricity prices. The proposed methodology includes three steps: the generation of scenarios for these random parameters, the approximation of these scenarios by a multivariate scenario tree, and the optimization of the company's operational and financial hedging decisions under a stochastic programming framework. The optimization model permits the representation of a diversified generation portfolio and measures risk exposure by means of conditional value-at-risk. A realistic numerical example is solved to illustrate the possibilities of our approach.

Index Terms- Conditional value-at-risk, generation operation planning, integrated risk management, risk analysis, stochastic optimization.

Due to copyright restriction we cannot distribute this content on the web. However, clicking on the next link, authors will be able to distribute to you the full version of the paper:

[Request full paper to the authors](#)

If your institution has an electronic subscription to IEEE Transactions on Power Systems, you can download the paper from the journal website:

[Access to the Journal website](#)

Citation:

Cabero, J.; Baíllo, Á.; Cerisola, S.; Ventosa, M.; García, A.; Perán, F.; Relaño, G. "A medium-term integrated risk management model for a hydrothermal generation company", IEEE Transactions on Power Systems, vol.20, no.3, pp.1379-1388, August, 2005.