

Electric Power and Power Electronics Institute

INVITED SEMINAR

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CEPEL's Chain of Optimization Models as a Supporting Tool for the Decision Making in the Brazilian Regulatory Framework

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Abstract

This presentation is divided in two parts. In the first part is presented the main features of the Brazilian approach to provide renewable energy deployment at large scale in the country, highlighting the importance of adopting an enabling and comprehensive policy and regulatory framework that includes energy resources assessment, expansion and operational planning, public auctions, social and environmental aspects, and project financeability. A key feature in this approach is the use of quantitative figure of merits obtained from CEPEL's chain of optimization models that comprise several horizons for the coordinated decision making.

The second part summarizes the comprehensive and, at the same time, detailed studies carried out to support the decision by the Brazilian government to implement or not an energy rationing in 2014 and 2015, where critical hydrological conditions were experienced. One key parameter to support this decision was the CEPEL's stochastic optimization models, where adequate system performance probabilistic indicators and approaches to compute them, as well as worse scenarios and inflow resemblance analyses were utilized. Therefore, the decision of not implementing energy rationing, and to continue to closely monitor the system performance, was taken based on technical evaluation.

Speaker Bio



Albert C. G. Melo received the B.Sc. degree from Federal University of Pernambuco, and MSc. and DSc. (PhD.) degrees from Catholic University of Rio de Janeiro (PUC-Rio). Since 1985 he has been with CEPEL, the Brazilian Electric Energy Research Center, working in the coordination and development of projects and software in the areas of power system reliability, generation, transmission and new renewables expansion and operational planning, financial and risk evaluation of projects and energy policy. He was a former member of the Working Group for the new institutional framework of the Brazilian power sector. He has been involved in the US-Brazil Strategic Energy Dialogue, the technical liaison between the Ministry of Mines and Energy of Brazil (MME) and the UN Sustainable for All Initiative, and the Technical Coordinator of the Program of Work between MME and the International Energy Agency. Currently he is Director-General at CEPEL. He is also a Faculty at the State University of Rio de Janeiro.