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"Cálculo da Reserva Operativa Girante do Sistema Elétrico Brasileiro"

The importance of the Spinning Reserve calculation is related to meeting the needs of electric power consumers, by making up for possible problems caused by loss of generation and load variations. The first methodology adopted in Brazil was based on a deterministic concept, adopted for North/Northeast and South/Southeast/Midwest Systems. During 1983, a new methodology was presented, adding probabilistic concepts to the Global Reserve Calculation for the System, using the same deterministic concept to share the global value among all companies belonging to this system. This hybrid methodology for calculation Spinning Reserve was adopted for South/Southeast/Midwest system in 1985, and for the North/Northeast system in 1998. This dissertation identifies some problems caused by the current Spinning Reserve Methodology Calculation, specially those related to New Electric Power Model rules and limitations due to the evolution of the overall system. Forecasted Spinning Reserve values and Real Load values are provided to verify the satisfaction level of consumers, according to the Spinning Reserve calculation methodology. A methodology completely based on probabilistic concepts is provided to allow a fair calculation / sharing of the global spinning reserve, considering its allocation and quantification, due to the Automatic Generation Control operation and contract aspects, respectively. Finally, comparative results achieved with the use of the two methodologies are presented.