Electric Power Systems Research, vol.78, no.3, pp.515-523, March, 2008.

An overview of ancillary services in Spain

E. Lobato Miguélez; I. Egido Cortés; L. Rouco Rodríguez; G. López Camino

Abstract-

Under a deregulated environment, ancillary services (AS) are defined as the set of products separated from the energy production, which are related to security and reliability of a power system. Ancillary services can be classified in: (a) active power ancillary services (load–frequency control (LFC)—including primary control, automatic generation control (AGC), tertiary control, balancing service and black start provision) and (b) reactive power ancillary services (voltage control). The system operator is the entity responsible for the secure operation of the power system and in this way, the management of all the AS is considered a specific function of the system operator. Under a deregulated framework, ancillary services are separated from the energy production, and can be mandatory or remunerated under market-driven mechanisms. This paper overviews the management of ancillary services in the Spanish power system, including a detailed technical description of the services and the organization of the ancillary services markets. In addition, a comprehensive review of different optimization algorithms and tools used by the agents and system operator within the Spanish electricity business is presented.

Index Terms- Ancillary services; VAR/voltage control; Load–frequency control (LFC); Automatic generation control (AGC); Power loss reduction; Optimal power

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 you institution has a electronic subscription to Electric Power Systems Research, you can download the paper from the journal website:
Access to the Journal website

Citation:
Lobato, E.; Egido, I.; Rouco, L.; López-Camino, G. "An overview of ancillary services in Spain", Electric Power Systems Research, vol.78, no.3, pp.515-523, March, 2008.