Review on automatic generation control strategies for stabilising the frequency deviations in multi-area power system

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ABSTRACT

This paper reviews on the function of Automatic Generation Control (AGC) as an intelligent mechanism in enhancing electrical power systems dynamic performance at various perturbations; by sustaining the frequency and tie-line power within the scheduled limits. The review discloses the investigation on the flexible ac transmission system (FACTS), soft computing-based optimisation techniques, centralised approaches, decentralised methods, adaptive control approaches, and robust control techniques in AGC systems. Furthermore, the discussion focuses on applications of AGC with energy storage systems (ESS), high voltage direct current (HVDC) link, distributed generation, microgrids, and smart grids, in both traditional and liberalised power systems. Eventually, this paper concludes by highlighting the economic load dispatch methods, load forecasting methods, and digital control approach in AGC systems.

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