Design of a New Fuzzy Controller for AGC in Multi Area Interconnected Thermal System

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Abstract:

In this paper automatic generation control (AGC) of three and five unequal-areas interconnected thermal systems with reheat turbine and generation rate constraints of 3% has been investigated. New fuzzy logic controller for AGC in multi area thermal system is suggested. Fuzzy logic controller is optimized by evolutionary computation Genetic Algorithm (GA). A comparison dynamic response of systems reveals that the dynamic performance of suggested fuzzy controller is superior to conventional controllers. Sensitivity analyses reveals robustness of the fuzzy logic PD controller (FLPD) to wide changes in the system parameters (Inertia constant H, Reheater time constant T_r and Reheater coefficient K_r).

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Keywords: AGC, Fuzzy logic PD controller, Genetic Algorith, Reheater time constant and Reheater coefficient

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