Frequency stabilization in multi-area interconnected power system in presence of photovoltaic farms using hybrid GA-fuzzy logic controller

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The economic cost of power generation cause solar clean sources development. On the other hand, the scattered energy consumption centers and Suitable areas for solar energy production, these sources are being used as a very important source of energy. So the increasing rate of energy production by solar panels and considering the uncertainty of these sources, cause frequency problems. In this thesis, optimal design of genetic- fuzzy controller to stabilize the frequency in presence of solar production is done. Frequency deviation and the irradiation of solar panels are the input signals of the fuzzy controller. The main aim is to determine output power of the solar farm to stabilize frequency. The fuzzy memberships are optimized with genetic algorithm. Simulation is done in MATLAB software.

Keywords : Genetic algorithm, Fuzzy controller, frequency Stability