

The uncertainty of the renewable resources is a major impediment for successful implementation them for generation an electrical power to supply an isolated area. The combination of several renewable sources (wind and photovoltaic) with a diesel generator is suited to electricity supply of remote areas. The purpose of a hybrid power system is to produce energy at all times requested by consumers and if possible to produce it from renewable sources, the stochastic nature of renewable energy makes fluctuation of real power on the network therefore on the frequency. This problem can be solved or avoided by satisfying the real power supply-demand balance constraint in the hybrid energy system. Using battery bank system can increase the penetration of renewable energy and absorb the rapid fluctuation due to the stochastic nature of renewable energy, that, it increases the difficulty of managing all these systems in real time, ensuring the quality of energy supplied. The objective of this work is to propose a methodology to design a fuzzy logic controller coupling with stateflow to improve its performances.