ABSTRACT

Nowadays there are a huge growth of power necessity in society. However it not followed with the growth of power system to cover the need. This condition force the power system to work in their limit, make them easily to get unstable condition during disturbance. Disturbance comes as a result of power changes every time, and will produce oscillation in power system. The oscillation will grow and make generator loss the synchronization and result in system blackout. There are several additional tool to damp oscillation during disturbance, one of them is Power System Stability (PSS). PSS coordinate with Flexible AC Transmission System (FACTS) like Unified Power Flow Controller (UPFC) proven to damp low frequency oscillation better. In this paper, a research investigated tuning method of PSS and UPFC using Craziness Particle Swarm Optimization (CRPSO). Using coordination PSS and UPFC based CRPSO will increase power system stability better than PSO method. From the research, it found that using PSS and UPFC based CRPSO reduce the average of overshoot and settling time frequency respon up to 72.92% and 46.04% compared to system without PSS and UPFC. This number is better than overshoot and settling time of PSS and UPFC based PSO which is 66.58% and 43.98%.

Key Words: Stable, oscillation, PSS, UPFC, CRPSO