Analysis of Simultaneous Coordinated design of STATCOM-based damping stabilizers and PSS in multi-machine power system using Seeker Optimization Algorithm

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Abstract:

Facts devices are increasingly being applied to increase the damping of the power system. Uncoordinated design of these devices with power system stabilizers (PSSs), however, may have a detriment effect on the system performance. This paper presents seeker optimization algorithm (SOA) to design the parameters of PSS and STATCOM coordinately to improve more stability of power system. The SOA is used to achieve the best optimal results to minimize the objective function of the optimization problem. Simulation is carried out on a two-area Kundur, and simulation results confirm the efficiency of the proposed method to stabilize power system oscillations. Comparing SOA with other intelligent method (GA) shows that a better performance is achieved.

Keywords: seeker optimization algorithm (SOA), STATCOM, PSS, Simultaneous coordinated design.