

# On the Control Strategies of Shunt FACTS Devices for the Improvement of Transient Stability

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## Abstract

To enhance power system transient stability, shunt FACTS devices can be controlled in discontinuous mode or in a combination of discontinuous and continuous mode. This paper investigates the latter discontinuous then continuous control strategy in a view to improve angle and speed response. In continuous mode, it is found that proper selection of controller gain plays an important role on proportional controller performance. Nonlinear timedomain simulation with various ratings of SVC and STATCOM shows that controller gain-setting depends on FACTS device rating. Gain of the controller is optimized for minimum settling time and overshoot using Particle Swarm Optimization (PSO) technique and results are verified using time-domain simulation.