Abstract

A power system, under heavily loaded conditions, is at high risks of probable line outage and consequent voltage instability problem. Real power loss and voltage deviation minimization are reliable indicators of voltage security of power networks. This paper proposes a Particle Swarm Optimization (PSO) based optimal location and sizing of Static Var Compensator (SVC) to
improve voltage stability under the most critical line outage contingency in a power system network. Line outages are ranked based on increased reactive power generation and line losses. Particle swarm optimization technique optimizes the location and size of the SVC. The effectiveness of the proposed work is tested in IEEE-30 Bus test system. It has also been observed that the proposed algorithm can be applied to larger systems and do not suffer with computational difficulties.

Reference

- P.S. Venkataramu, and T. Ananthapadmanabha, "Installation of unified power flow

**Index Terms**

Computer Science  
Power Systems

**Key words**

FACTS devices  
SVC  
Contingency

Condition  
Particle Swarm Optimization Algorithm

Voltage Stability Improvement.