

ENHANCEMENT OF VOLTAGE STABILITY AND LOADABILITY MARGIN USING FACTS DEVICES

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Abstract

Voltage stability analysis is essential for a secure power system operation. A lot of works have been developed for these analysis methods to improve voltage stability. This paper investigates the enhancement of voltage stability using FACTS devices. The objective of this paper is to enhance voltage stability based on static analysis. The continuation power flow methods are proposed in case of the increasing loading of contingency. Usually the conventional methods can provide solutions right up to the critical point; the continuation method becomes necessary only if solutions exactly at and past the critical point are required. The proposed approach is based on TCSC comparison with STATCOM compensation to increase the steady state voltage stability margin of power capability. The IEEE-6 bus system is simulated to test the increasing loadability. The advantage of this simulated method is to develop a simple, fast and convenient procedure which can be applied effectively to enhance the voltage stability.

Keywords: static voltage stability, TCSC, STATCOM.