

EFFECT OF VARYING VOLTAGE REFERENCE OF SVC FOR STEADY STATE OPERATING CONDITIONS

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ABSTRACT

With increasing complexity of the network and the rising demand, the need for maintaining the operational parameters of the power system within limits increases. Normally it is preferred to have reactive power compensation done locally at the load points or at low voltage pockets in the system to improve the voltage profile. With improving technology and the introduction of Flexible AC Transmission Systems (FACTS) devices, reactive power compensation of the network is done with better controllability. The major disadvantage associated with FACTS devices is the cost. In this paper, it has been shown through simulation studies that, if the maximum deviations in loads are known, based on these loading conditions a Static VAr Compensator (SVC) rating can be used for reactive power compensation by varying the voltage reference to gain better voltage profile. It has also been concluded that for future load growth, instead of considering new compensation devices varying the voltage reference of the existing SVC would be sufficient to bring the voltages within the acceptable operation limits thereby differing investments.

KEYWORDS: Flexible AC Transmission System (FACTS), Load Flow Studies, Reactive Power Compensation, Simulation, Static VAr Compensator (SVC), System Losses and Voltage Profile