

Voltage Stability Assessment and Enhancement Using STATCOM -A Case Study

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Abstract : Recently, increased attention has been devoted to the voltage instability phenomenon in power systems. Many techniques have been proposed in the literature for evaluating and predicting voltage stability using steady state analysis methods. In this paper, P-V and Q-V curves have been generated for a 57 bus Patiala Rajpura circle of India. The power-flow program is developed in MATLAB using Newton-Raphson method. Using Q-V curves, the weakest bus of the power system and the maximum reactive power change permissible on that bus is calculated. STATCOMs are placed on the weakest bus to improve the voltage and hence voltage stability and also the power transmission capability of the line.

Keywords : voltage stability, reactive power, power flow, weakest bus, STATCOM

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