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VOLTAGE SAG MITIGATION IN POWER SYSTEM USING
D-STATCOM FOR POWER QUALITY IMPROVEMENT

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**VOLTAGE SAG MITIGATION IN POWER
SYSTEM USING D-STATCOM FOR POWER
QUALITY IMPROVEMENT**

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ABSTRACT

For some decades, power quality did not cause any problem, because it had no effect on most of the loads connected to the electric distribution system. When an induction motor is subjected to voltage sag, the motor still operates but with a lower output until the sag ends. With the increased use of sophisticated electronics, high efficiency variable speed drive, and power electronic controller, power quality has become an increasing concern to utilities and customers.

This paper presents the voltage sag mitigation technique using distribution static compensator (D-STATCOM) for power quality improvement in power system. Voltage sag occurs during starting of a large motor loads, occurrence of fault, energizing transformer and applying large load. To create voltage sag, additional load is applied to the load bus and different types of fault are introduced in the line and bus. D-STATCOM is used to mitigate voltage sag. In D-STATCOM, voltage source inverter (VSI) converts the DC voltage to sinusoidal AC voltage. The operation is by comparing the AC magnitude voltage at bus with the DC voltage, if there is difference in the voltage magnitude, D-STATCOM will inject the supportive voltage to the system. The purpose of this project is to improve the power quality in terms of voltage sag. The simulation is carried out in 8 bus and 14 bus system using MATLAB Simulink R2009b.

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