

capacitive power during a fault is one important advantage of the STATCOM over the SVC. In addition, the STATCOM will normally exhibit a faster response.

Initially the Bypass breaker is closed and the resulting natural power flow at bus B3 is 839 MW and -27 Mvar. The Pref block is programmed with an initial active power of 8.39 pu corresponding to the natural power flow. Then, at $t=10s$, Pref is increased by 1 pu (100 MW), from 8.39 pu to 9.39 pu, while Qref is kept constant at -0.27 pu. The real and reactive powers increase with the increase in angle of injection. Simulation results show the effectiveness of UPFC to control the real and reactive powers. It is found that there is an improvement in the real and reactive powers through the transmission line when UPFC is introduced.

7. Conclusion

Among FACTS controllers, the shunt controller STATCOM have shown feasibility in terms of cost effectiveness in a wide range of problem-solving abilities from transmission to distribution levels. A comparison between the STATCOM and the SVC is made and based on several aspects it is concluded that a STATCOM is more preferred when compared to SVC and UPFC. Instead of directly deriving reactive power from the energy storage components, the STATCOM basically circulates power with the connected network. Even though UPFC has got both real and reactive power exchange and it is of high cost.

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