

## **Process of Voltage Mitigation by UPFC**

Abhishek Kumar Sahu

*Research Scholar  
SSCET Bhilai*

Om Prakash Verma

*Research Scholar  
DIMAT Raipur*

Rajkumar Jhapte

*Sr. Assistant Professor  
SSCET Bhilai*

*Abstract*— This Paper we tend to discuss regarding the non linear masses in trade cause associate increasing deterioration of the ability system voltage and current waveforms. As a result, harmonics area unit generated from power converters or nonlinear masses. This causes the ability system to control at low power issue, low potency, enlarged losses in transmission and distribution lines, failure of electrical equipments, and interference drawback with communication system. So, there's a good have to be compelled to mitigate these harmonic and reactive current parts. Active Power filters area unit a viable resolution to those issues.

In order to propose solutions to mitigate these adverse effects, a three-phase unified power flow controller (UPFC), with a mix of shunt active power filter and series active power filter with common dc link is employed to eliminate offer current harmonics, compensate reactive power, voltage sag and voltage swell compensation on distribution network. The performance of the active power filter in the main depends on management strategy accustomed generate reference current for shunt active power filter (APF) and generate reference voltage for series active power filter. The management strategy is predicated on the extraction of Unit Vector Templates from the distorted input offer. These templates are going to be then akin to pure curved signal with unity (p.u) amplitude. Simulation was conducted to review voltage sag and swell compensation in massive distribution system. Comprehensive results for the structure of UPFC model area unit bestowed to assess the performance of UPFC as a possible custom power resolution.

*Keywords*—FACTS, EHV-AC, Distributed Generation, Voltage Sag, STATCOM, UPFC, PSCAD, APF.