are well damped with real power coordination controller.

3. Modeling of UPFC

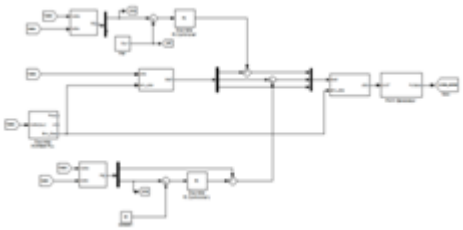

Figure 1: Series controller with coordination

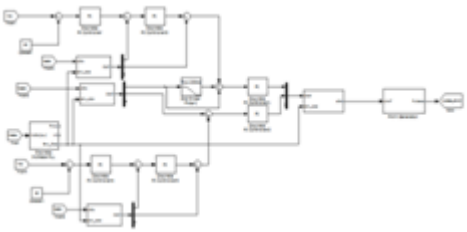

Figure 2: Shunt controller with coordination

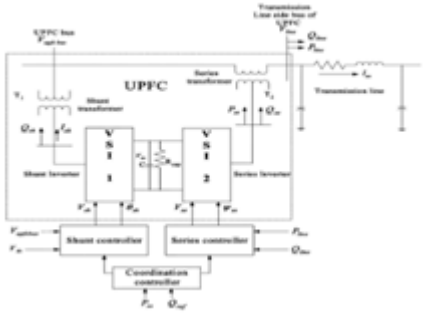

Figure 3: Proposed UPFC configuration

4. Simulation Results

Figure: Active Power of Transmission line

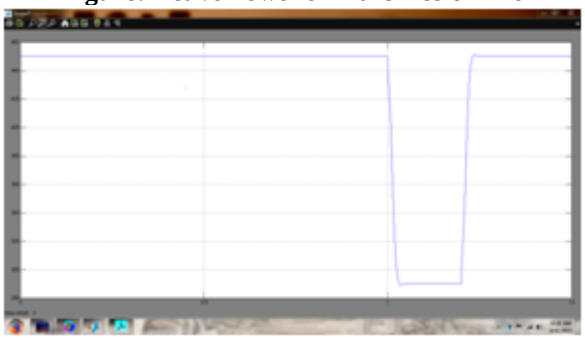

Figure: Reference Active power of system

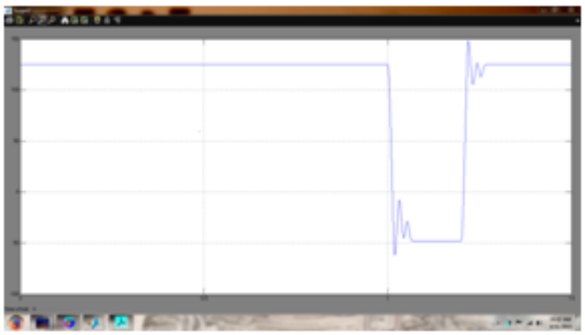

Figure: Reactive power of Transmission line

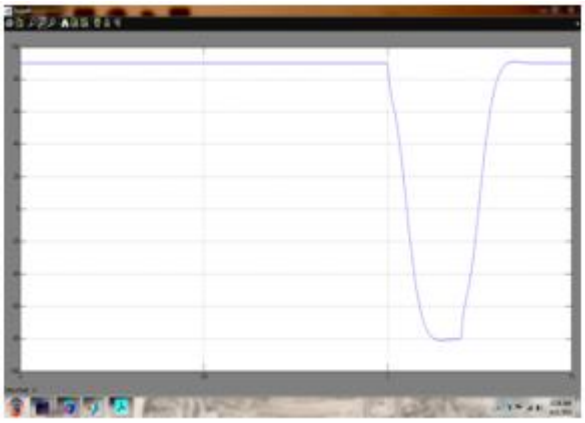

Figure: Reactive power of shunt branch

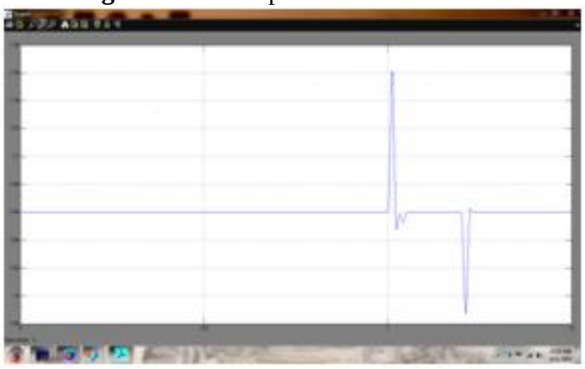

Figure: UPFC bus Voltagevariaction

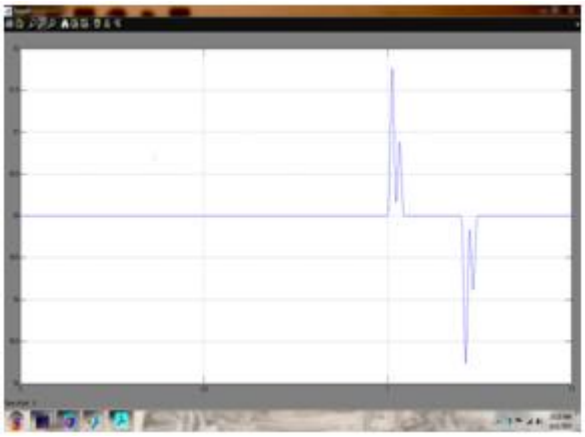

Figure: DC bus Voltage performance

5. Conclusion

This paper has presented a new real and reactive power co-ordination controller for a UPFC. The basic control strategy is such that the shunt converter of the UPFC controls the UPFC bus voltage/shunt reactive power and the dc link capacitor voltage. The series converter controls the transmission line real and re-active power flow. The

contributions of this work can be sum-marized as follows.

Two important coordination problems have been addressed in this paper related to UPFC control. One, the problem of real power coordination between the series and the shunt converter control system. Second, the problem of excessive UPFC bus voltage excursions during reactive power transfers requiring re-active power coordination.

Inclusion of the real power coordination controller in the UPFC control system avoids excessive dc link capacitor voltage excursions and improves its revovery during transient conditions. PSCAD-EMTDC simulations have been conducted to verify the improvement in dc link voltage excursions during transient conditions Inclusion of reactive power coordination controller helps in significantly reducing UPFC bus voltage excursions during re-active power transfers. The effect on transmission line reactive power flow is minimal.

MATLAB simulations have shown the improvement in power oscillation damping with UPFC.

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