

Fig.3f: RMS voltage after DSTATCOM

In spite of sudden load variations, the regulated rms voltage shows a reasonably good result, where the transient overlaps is almost omitted.

The graph indicating DC voltage, active power and reactive power after DSTATCOM is connected to the system is shown in Figure 3g respectively.

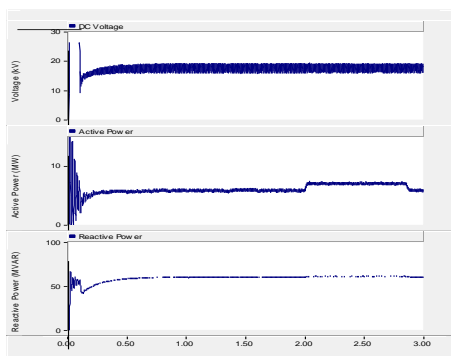


Fig. 3g: DC voltage, P, & Q after DSTATCOM.

#### 4. Conclusions

This paper has presented electromagnetic transient models of capacitor bank and DSTATCOM and applied them to the study of power quality and reliability. A new PWM-based control scheme has been implemented to control the electron

ic valves in the two-level VSI used in the DSTATCOM. The control scheme was tested under a wide range of operating conditions, and it was observed to be very efficient in every case. The fault detection technique used in the paper is very simple and has proved to be very effective. The DSTATCOM eliminated the voltage sag and swell conditions of the ac bus voltage at the point of common connection, thus improving the quality and reliability of power supply at the distribution side. It is also hoped that this study if implemented in the Akuapim Ridge area will provide solutions to the concern of voltage regulation leading to power quality and reliability improvements to consumers.

#### 5. References

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