

# PF CORRECTION FOR VARYING LOAD PROFILE - APFC SYSTEM

## PREAMBLE

Client was maintaining poor Average PF. In order to improve the average PF and avoid PF Penalty, they opted for implementation of suitable PF Correction System. Hence Load Flow Study was conducted to identify the Load Profile and recommend a suitable system.

## SITE ANALYSIS

Parameters	Readings logged
KVA	270
KW	228
KVAR	145
P.F	0.844
Voltage (volts)	231
Current (amperes)	390
THD – Voltage (%)	4.3
THD – Current (%)	4.5

## OBSERVATIONS AND INFERENCE

The analysis of the readings recorded during the time of measurement shows that the instantaneous PF of 0.844 is less. The trend of the Reactive Power shows a varying load profile. The Level of Voltage and Current THD are marginally higher at certain instants.

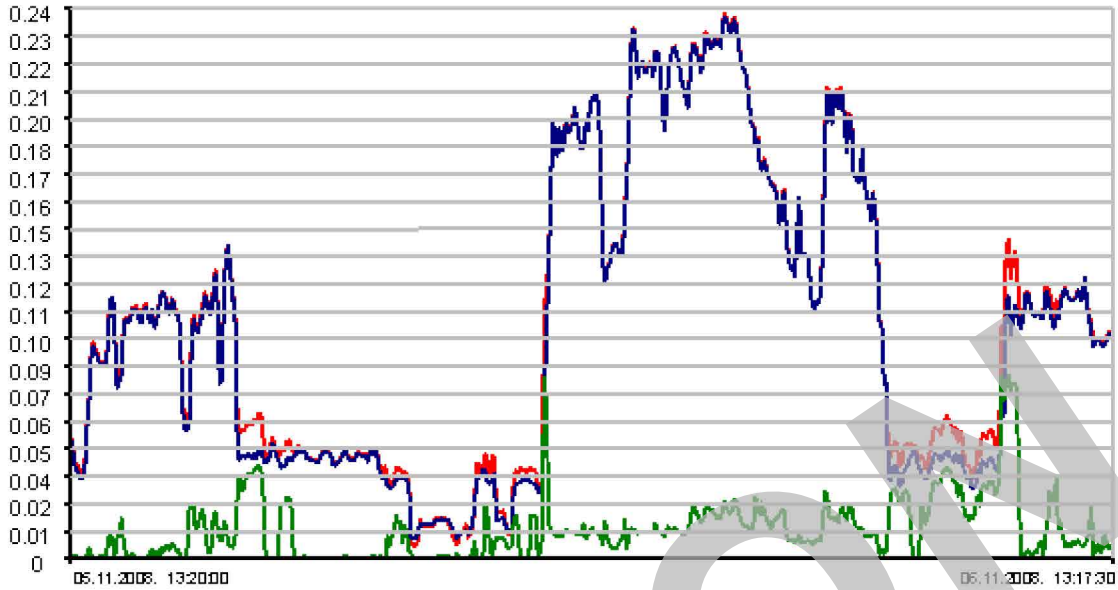
## SYSTEM DESIGN AND RECOMMENDATION

For the varying Load Profile recorded, the system needs to be implemented as an Automatic PF Correction System, a centralized PF Correction System at the MV Panel.

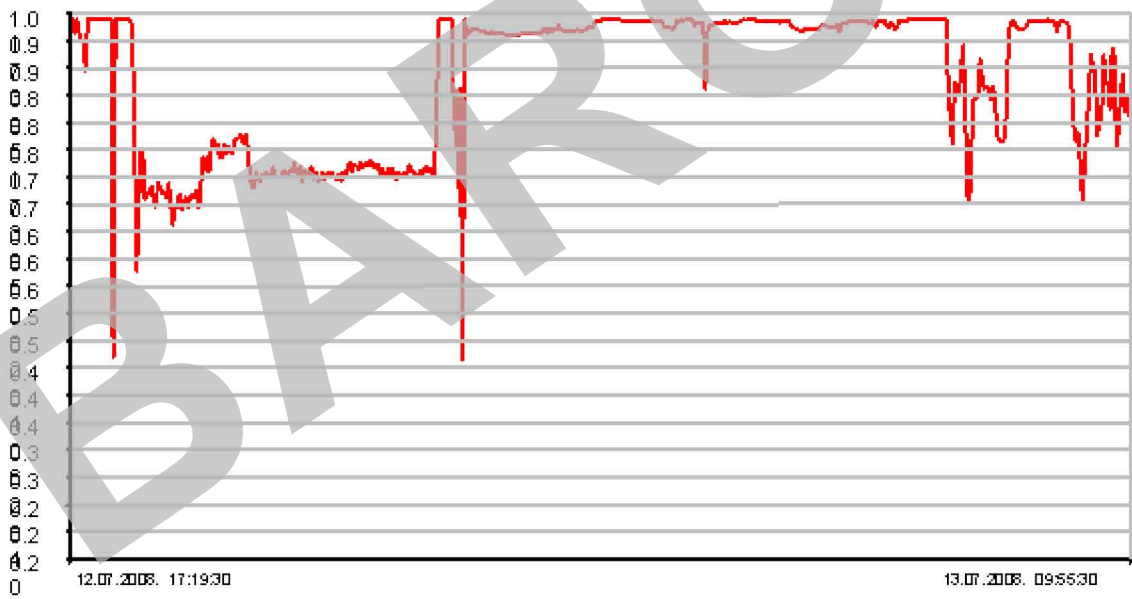
In order to improve the PF from the existing level to above 0.9, the APFC Systems is designed to provide the required output, with minimum step and configuration suiting the Transformer Compensation and load compensation requirements.

For the recorded level of Harmonics, in order to have a reliable PF Correction, the APFC System is incorporated with 525 Volts Capacitors and Relay with Harmonic sensing and Antiresonance Features.

## PERFORMANCE



St+ (MVA) Pt+ (MW) Qti+ (MVar)



Pfti+ Avg

The above Trend Graphs show that for the varying Load Profile, the PF maintained by the APFC System installed at the MV Panel is maintained above 0.9.

**BENEFIT**

The Average PF as per the Electricity Bill is above 0.9 thereby avoiding the PF Penalty levied on the customer.