



Manufacturing company reduces electricity bill costs with the help of PQaaS

Incoming voltage	No. of incomers	Transformers	Major load
33 KV	1	2	Arc furnaces, motors

Challenge

A mill rollers manufacturing facility was facing higher electricity bills costs in spite of having an existing APFC system and a PF of 0.996.

PQaaS

- PCC feeder and LT main incomer was monitored with a **class - A advanced power quality analyzer**
- The performance of the existing APFC system was assessed parallelly

Harmonics Analysis and PF Improvement

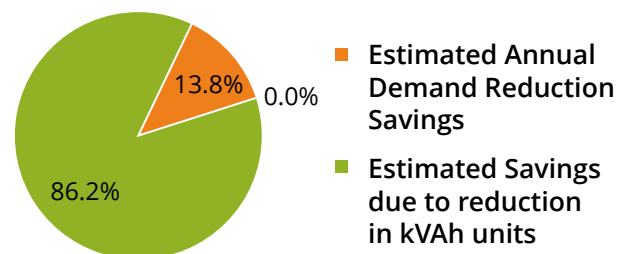
Discovery

- There was a difference of **7072 units per month** between **KWH and KVAH**
- It was caused by the capacitor panels not being able to respond faster to the rise or fall in load reactive power
- The capacity of the APFC panel was sufficient to meet the peak load reactive power demand
- However, its poor correction response time was insufficient to compensate small KVAR changes

Deliverables

- A more suitable upgrade - hybrid PFC (SVG + RTPFC) was recommended with tuning and sizing details
- The system was designed specifically to compensate the very small KVAR in lead and lag direction
- PQaaS audit proved to save 2100 KVAH per month in billing thereby reducing the financial losses by INR 1,75,392 annually

Annual Estimated Monetary Savings Breakdown





Efficienergi helps Indian pharma giant save crores by solving mystery of poor power quality

Incoming voltage	No. of incomers	Transformers	Major load
11 KV	1	1	HPLC machines, humidifiers, etc

Challenge

Client Facility had neutral to earth voltage surges randomly occurring in an otherwise healthy UPS powered Electrical Network. Even slight disruptions in power can be damaging to pharma lab's critical loads, thereby wasting valuable time, resources and halting critical processes.

PQaaS

- 4 nos of PQ analyzers deployed simultaneously
- Detailed study of the load distribution till the socket level was carried out
- Capacity, Ground Potential and Leakage Current assessment at multiple locations

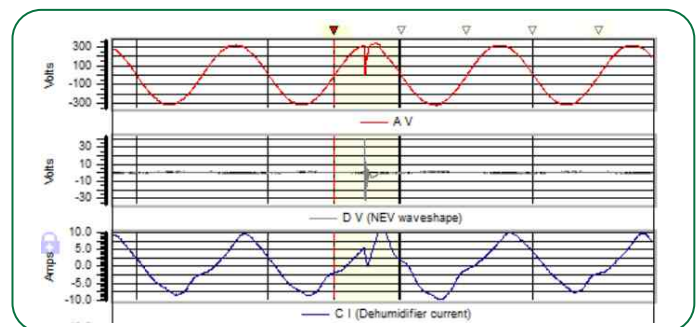
Root Cause Analysis

Discovery

- A major issue in installation was that the functional and protective earth connections were intertwined at the output side of the isolation transformer
- The loads were unevenly distributed throughout the network
- The causes of various Power Quality events were pinpointed

Deliverables

- **Effective, easy-to-implement actionables were provided to the client for each cause**
- **Load redistribution plan was designed and given to the client**
- **Crores in INR saved in terms of Potential Damage Costs and Project Delay Penalties**
- **Post rectification, the client observed the Power Quality greatly improved and damaging events to disappear.**



“What you as a company did for us was really fruitful. The Equipment and Intellectual Expertise that you as a team were carrying was really appreciable!”

Senior DGM





PQaaS helps a large steel plant gets in-depth insights with respect to Power Quality Compliance

Incoming voltage	No. of incomers	Transformers	Major load
100 KV	1	2	Furnaces, rolling mill drives, winders, etc.

Challenge

A large steel plant was requested to check its power quality for standards compliance on the onset of an upcoming data center facility as its neighboring load

PQaaS

- The 100 KV PCC feeder was monitored with a **Class - A advanced power quality analyzer** over a span of 30 days
- Standards compliance verified for **IS 17036, IEEE 519** and especially **SEMI-F47** considering impact on the upcoming Data Center
- The monitoring was observed live for the whole duration of monitoring via **secqr[®] communication and control**

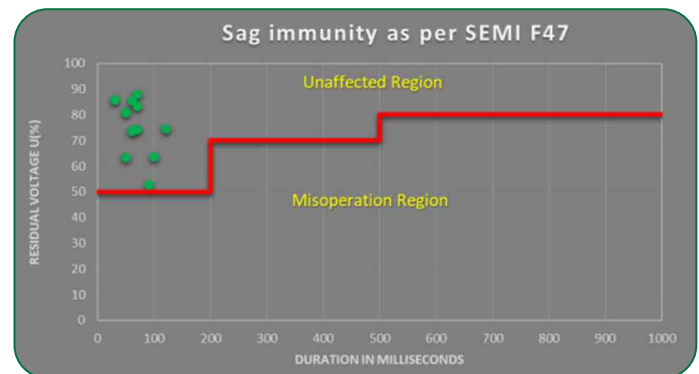
Proactive Compliance Assessment

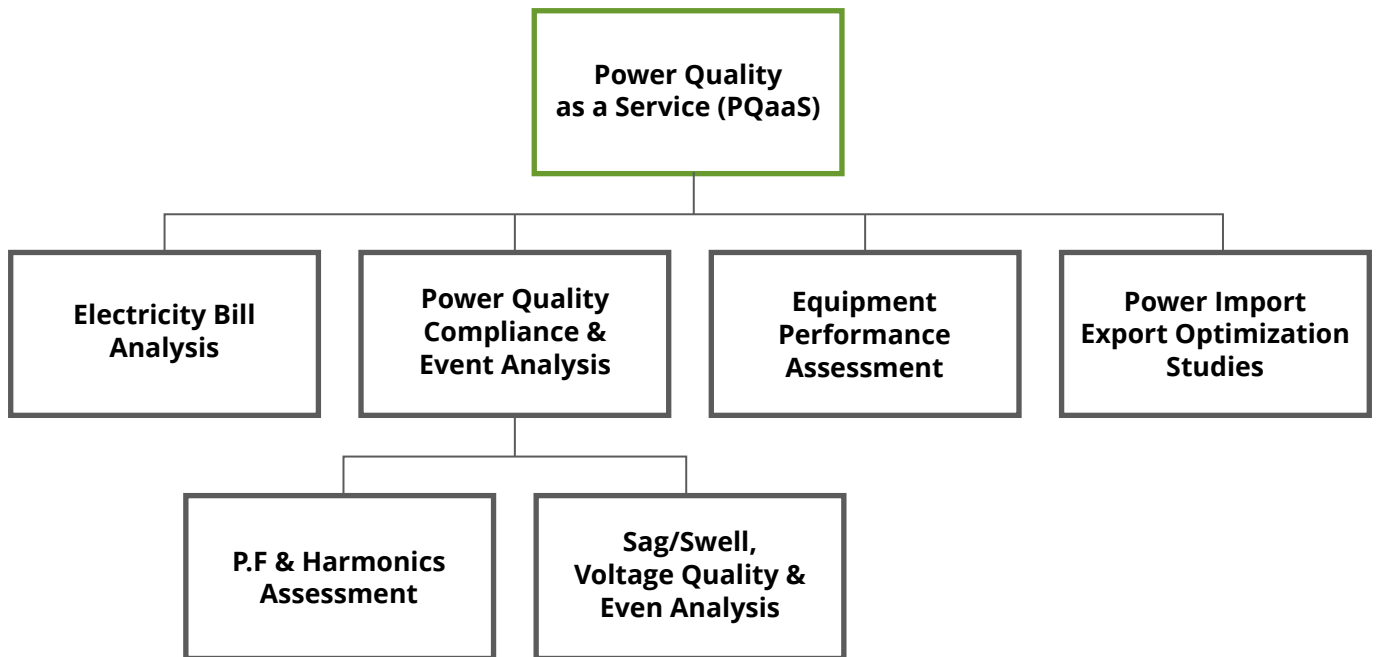
Discovery

- High rate of change of power was observed due to the major loads, which propagated short term and long-term flickers in the electrical network
- These flickers were found to be non-compliant to the **IS 17036 Flicker severity limits**
- A total of **73 voltage events** were captured during the Power Quality monitoring
- Based on the directional analysis, almost all the sags were load generated

Deliverables

- **Accurate compliance assessment was carried out for IS 17036, IEEE 519-2014 and SEMI F-47 which specifies voltage sag tolerance for semiconductor loads**
- **Actionables to mitigate identified events and provide compatible power to the data center were given to the stakeholders**





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