

# Power Quality Practitioner training for Electric utility engineers

Power Quality Inc (USA)/Power Quality Thailand LTD

**“practitioner is one who brings an art or science to full realization”**

Practical Power Quality best practices and training for utility engineers in PQ departments, customer service departments and public relations departments. (At the meter and beyond, from the customer perspective)

## **Objective for this training:**

Increase the knowledge and effectiveness of utility engineers to work with Power Quality and Power Reliability issues internally and with Customers.

Session 1. Understanding the basics of Power Quality: Definitions, economic impact of various PQ parameters on utilities and customer impact. Brief overview of the Power Quality parameters.

Session 2. PQ parameter details Voltage stability and voltage sags, Sag and stability characteristic measurements, the sources, causes, effects on voltage quality and economic impact. (case studies)

Session 3. PQ parameters details Voltage transients (very fast, fast, slow) Characteristic measurement, sources, causes, effects on voltage quality and economic impact. (case study)

Session 4. PQ parameters details Flicker Characteristics measurement, sources, causes, effects on voltage quality and economic impact. (case study)

Session 5. PQ parameter details . Harmonic fundamentals in the electrical network. Characteristics , measurement, sources, causes, effects on voltage quality and economic impact. (case study)

Session 6. PQ parameter details Harmonics II Characteristics measurement, sources, causes, effects on voltage quality and economic impact. (case study)

Session 6. PQ parameter details voltage imbalance Characteristics measurement, sources, causes, effects on voltage quality and economic impact. (case study)

Session 7. PQ issues (Situations) that are not related to supplied voltage but impact the customer who looks to the utility for assistance and support. (Grounding/Earthing, electrical design and non-technical issues) case study

Session 8. Power Quality solutions for all 10 PQ parameters

Session 9. Case Studies for all Power Quality parameters

Session 10. PQ monitoring instruments a review of various technologies of portable PQ monitors and Power Quality Monitoring systems. Differences, similarities, software and of where to monitor, when to monitor, how long to monitor (case studies)

Session 11. Monitoring for Voltage stability and voltage sags, with PQMS vs portable (case study)

Session 12. Monitoring for Voltage transients (very fast, fast, slow and very slow) with PQMS vs portable. (case study)

Session 13. Monitoring for Voltage and current Harmonics. Determining the source (if possible) (case Study)

Session 14. Monitoring for Grounding/Earthing leakage currents, ground fault monitoring (case study)

Session 15. SmartGrid technologies and the impact on Power Quality.

Session 16 Wrap up, review

About the author and senior trainer: Terry Chandler [Terryc@powerquality.org](mailto:Terryc@powerquality.org)

Terry Chandler is a pioneer in the Power Quality industry. His career in Power Quality Engineering began in the 1970's as systems application engineer for automatic test systems. He was one of the founders of ONEAC Inc a pioneer in the Power Conditioning market and Reliable Power Meters Inc where they developed the first PQ instrument that could record all PQ and energy parameters simultaneously. He founded Power Quality INC (USA) and Power Quality Thailand LTD. He has written more than 100 technical papers on various aspects of Power Quality and taught hundreds of electric utility engineers and facility engineers the various aspects of Power Quality. Mr. Chandler developed the Power Quality Practitioner™ courses for the engineers and technicians who are involved in the practical aspects of resolving Power Quality related situations.