

The Power Quality Industry Gets a Little Older

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I knew that I was getting older when I started wearing my suit more for funerals than for weddings. With the sad news of the recent passing of Ray Waggoner, the power quality industry seems to be following suit. Ray was one of the early pioneers in the power quality field, having spent the majority of his engineering career in the teaching and consulting fields, and was the owner of ENTEG Systems, Inc. He contributed many articles in the industry publications, and was co-editor of EC&M's Practical Guide to Quality Power for Sensitive Electronic Equipment. Ray was familiar figure at many of the power quality conferences and his contributions will be missed. Such times often cause reminiscing.

As the infamous Y2K approaches, power quality monitoring equipment is entering the fifth generation of products. The first dedicated power quality monitor was the Dranetz 606 Disturbance Analyzer, providing HI/LOs and INC/ DEC's in textual format back in 1976. The second generation capitalized on the saying that "a picture is worth a thousand words", with the BMI 4800 producing graphical printouts of the waveforms in 1984. Use of such equipment was still pretty much confined to electric utility engineers and field service technicians.

Once users saw the waveforms, the cry became "more detail, more channels". In the late 80's came the introduction of several high speed sampling power quality monitors, capable of producing a mega-byte of data in just milliseconds. Like other information technology equipment, users began to suffer from "information overload", also termed "analysis paralysis". Based on the work of standards groups such as the IEEE and IEC, fourth generation power quality monitors in this decade began to turn data into information, classifying disturbances with such terms as "momentary sag" or "impulsive transient," at prices less than half of the previous generation of products.

As more people became aware of the productivity and other financial losses that are related to the quality of the electric supply being compatible with the equipment powered off of such, more facilities are monitoring the power on a permanent basis. Monitors are being distributed throughout the facilities, from the service entrance down to the sensitive loads. These monitors are often networked together through a LAN, which allows people in various areas of the company to monitor the system. Alarming, paging, and even e-mail messages inform the user of the latest significant events. Facility managers and utility personnel can now take proactive roles. However, due in part to the corporate re-structuring and electric utility deregulation, many more people with little power quality experience are now responsible for maintain the quality of supply necessary to maximize profits.

The fifth generation products are just around the corner. This now mature industry is following the pattern of the computer industry with increasing more powerful products that are easier to use, provide more information, and cost less money. One software product, Kreiss Johnson Technologies' AiPower, has actually been on the market for several years. It anticipated part of the next generation's trends, by turning information into answers through the use of fuzzy logic and other artificial intelligence tools. The EPRI Power Quality Diagnostic System developed by Electrotek Concepts is another such productivity-enhancement product, by relieving the user of the time-consuming work of analyzing megabytes of data to find out if what happened affected their process, or if their process was affected by what happened. For if it didn't, what does having all that data really mean?

The past two decades in power quality have been some exciting times and seen some remarkable changes in the capabilities of power quality monitoring equipment. For all that which Ray helped push the state-of-the-art and overall awareness forward, we are all grateful. And in the words of that great philosopher, "You ain't seen nothing yet".