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Industrial EKG Announces Energy Condition Monitoring Training Course

IEKG is pleased to announce that Energy Condition Monitoring technology has reached an important threshold of maturity with the availability of a comprehensive training course. This course explains basic concepts, technical measurements, diagnostic practices, and guidelines for condition interpretation, along with comparisons to and contrasts with established practices like vibration-based machinery condition monitoring, thermography, and lubricant sampling.

What is Energy Condition Monitoring?

The market convergence of energy revenue metering, power quality monitoring, and machinery condition monitoring has led to an emerging class of techniques referred to collectively as Energy Condition Monitoring. It encompasses the general methodology of making standard electrical measurements (current & voltage) and deriving from them various indicators of electrical *and mechanical* health in industrial machinery and power distribution systems. Particularly for motor-driven equipment, there are distinct and significant advantages to this methodology over vibration and other condition monitoring technologies. Energy Condition Monitoring is sometimes confused with MCSA, which is a distinctly different methodology based on electrical current measurement.

Back to First Principles

Modern techniques, standards, measurement equipment advances and plant information historian solutions now enable operators to ask - and get answers to - previously unanswerable questions about the behavior of machinery and industrial equipment in the context of their processes. This information availability has in turn has brought a return to first principles of energy use as a basis for monitoring, detecting, diagnosing, and prognosticating about both electrical *and mechanical* machinery condition.

The Course: Bridging a Historical Divide

A curious but well-known aspect of plant operation and engineering organizational behavior is the division of mechanical and electrical responsibilities. In the training course, intended for an audience of plant electrical and mechanical maintenance and production supervisors, engineers, and technicians, we first explore historical reasons for the divide. We then proceed to break down walls of confusion that have been erected by both sides in the form of different terminology for similar or even identical concepts that are at times surprisingly obvious, but other times frustratingly complex. We offer

analogies and examples from both sides and compare the complementary standards that serve to unlock the diagnostic secrets hidden in both communities' best practices.

Course Outline

- Introduction - A Historical Perspective on Industrial Power Distribution & Use
- Historical Waves of Plant Efficiency Initiatives (PF, VFDs, and EE Motors)
- Energy Efficiency and Machinery Reliability - Competing Forces?
- Similarities Between Industrial Electrical and Mechanical Systems
- Measuring 3-phase voltage and current
- Basic Energy and Power Metrics in Industrial Plant Power Distribution Systems
- Standards for Condition Metrics in the Electrical Community
- Standards for Condition Metrics in the Mechanical Community
- Tying Electrical and Mechanical Metrics Together
- Inherent Limitations of Mechanical and Electrical Approaches to Monitoring
- Sources of Uncertainty and Inaccuracies in Measurements
- Examples & Case Studies
- How to Get Started
    - Why an Energy Efficiency Focus Can Be a Hard Sell
    - Why a Mechanical Reliability Focus Can Be a Hard Sell
    - One Proven Thing To Do Before Anything Else
    - The Plant Equipment Pyramid
    - A Few Missteps We and Others Have Made
    - Examples of Commercially Available Tools

Course Venue and Timing

This one-day course is available on demand at your site, at a convenient nearby off-site meeting facility in your area that affords a break and allows you to focus on the entire event, or at our facility in the northern Cincinnati area.