Energy and Emission Relationship between Electrical Signature Analysis, Vibration and Motion Amplification Signatures

In the mid-1990s it was identified by the US Deparment of Energy challenge programs that the single most significant impact on energy consumption was maintenance of equipment. The ability to tie energy improvements to reliability and maintenance programs ties directly to corporate P&L and can be directly related to GHG emissions. One of the challenges is relating potential improvements and corrective actions to energy and emissions outside of using specific measurement equipment, such as electrical signature analysis. In this presentation we will cover a multi-year study conclusion on relating vibration spectra findings and motion amplification to watts losses in electric machines and the related algorithms. A discussion of the ongoing research surrounding other rotating machinery losses and the relationships to energy consumption in fuels other than electricity will be introduced.