

Summer 2014 Seminar Series Presented by FEEDER

THE IMPACTS OF SMART GRID ON POWER QUALITY STANDARDS AND PRACTICES

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9:00 AM – HEC 438

Two major components of the so-called “smart grid” have direct implications on power quality standards and recognized industry practices. The interconnection and operation of various forms of generation in non-traditional locations in the existing grid and the automatic reconfiguration potential of smart grid can and will have significant impacts on both engineering practice and standardization and are likely to require significant changes in the time-tested best practices used today to manage power quality.

The obvious potential issue with interconnected generation is associated with potential electronic interfaces between energy source and utility system. Such interfaces are well-known sources of harmonics and can be managed accordingly. For less-controlled interfaces (e.g. direct connection), power output fluctuations and the associated network voltage fluctuations could be cause for concern. Both IEEE and IEC have applicable standards for power quality management, but the approaches are markedly different.

These issues are the subject of this seminar and examples will be used to illustrate the unexpected consequences, for better or for worse, that smart grid concepts could have on managing power quality in reality as well as the on development of power quality standards.

DR. S. MARK HALPIN Auburn University



Dr. Halpin received his PhD from Auburn University in 1993. He has been employed at Mississippi State University, where he was the Tennessee Valley Authority Professor and at Southern Company. He is presently at Auburn University where he is the Alabama Power Company Distinguished Professor.

Dr. Halpin is a Fellow of the IEEE with a citation based on his contributions to power quality monitoring and has received the IEEE Charles Proteus Steinmetz Technical Field Award. He has been involved in more than 50 IEEE Working Groups associated with standardization, has served on the Standards Association Standards Board, and is the Chair of IEEE Standard 519 focusing on harmonic limits.

Dr. Halpin is also active in IEC and CIGRE in areas related to power quality. He has convened two CIGRE Working Groups dedicated to voltage fluctuations and flicker and is presently a member of a CIGRE Working Group considering issues related to smart grid impacts. He is a member of two IEC Working Groups related to power quality—harmonics and system-level EMC coordination—and is the Convener of IEC Working Group 2 which is in charge of standardization of voltage fluctuation and flicker measurement and management.

