



UAA College of Engineering
UNIVERSITY of ALASKA ANCHORAGE



UAA Professional Development Seminar Series

Geomagnetically Induced Current (GIC) in Power Systems: Causes, Effects, and Mitigations

Presented by [Dr. Ahmed AbuHussein](#)

Solar storms lead to Geomagnetic Disturbances (GMDs) which, in turn, drive Geomagnetically Induced Currents (GICs) along transmission lines and through the grounded neutral of a transformer. GICs cause half-cycle saturation in power transformers, drastically increasing their reactive power loss. A significant lack of reactive power support

causes voltage instability and potentially large-scale voltage collapse. Transformers may then overheat and, in the worst case, may be permanently damaged. Mitigation strategies can protect the integrity of a power system. This presentation will give an overview of current GIC mitigation techniques and introduce possible new approaches to cope with GIC.

Dr. AbuHussein joined the faculty of UAA's College of Engineering in the fall of 2017. He received his Ph.D. and his M.S. in Electrical and Computer Engineering (EECE) from the University of Memphis in Tennessee. He earned his BS degree in Electrical Power Engineering from Tafila Technical University (TTU) in Tafila, Jordan. His main fields of interest include advanced power and energy systems, power electronics, electrical machines and drives, smart-grid systems, renewable energy systems, energy storage systems, and flexible AC transmission systems (FACTS). Dr. AbuHussein has led research and educational projects in collaboration with several industrial and utility giants, including FedEx, Mitsubishi Power Products, and Memphis Light, Gas, and Water (MLGW). Dr. AbuHussein is a member of Institute of Electrical and Electronics Engineers (IEEE) and the IEEE Power and Energy Society (PES).

Friday, October 27, 2017

11:45 am - 12:45 pm

UAA Engineering & Industry Building, Room 211