IEEE BDA Webinar Series: Big Data & Analytics for Power Systems

Analytics Use Cases and Foundational Components

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Abstract: In this talk, we will share results from a study which performed phase identification using supervised and un-supervised learning and we will provide analytics use cases for different areas in a utility and then go through in more detail. We will first talk about voltage analytics. For example, we will discuss Distribution Engineers, Distribution System Operators, and Planners, who will evaluate voltage data at customer meter end points and at several strategic bellwether locations along a circuit. The analysis will help to facilitate several proactive decisions. Planners, Distribution Engineers, and Distribution System Operators need to undertake problems such as customer voltage complaints and circuit voltage criteria violations. The second topic is about energy and power analytics capability. For example, Distribution Engineers will evaluate the energy consumption data starting with the end-point customers and aggregating it to the transformer, sub-circuit, circuit, and substation bank level. The data will then be analyzed to (1) understand the asset loading conditions of the electrical network, (2) provide comparisons to nameplate ratings of the assets, (3) provide comparisons to the SCADA data recorded at substations and primary network, and (4) present loading status in the form of heat map visualization. The detailed power flow of the entire network will be utilized by various enterprise planning tools including System Modelling Tools, Long Term Planning Tools, and Grid Management Systems. Finally, we will talk about asset health analytics with 5 use cases.

Bio: Frank M. Gonzales, P.E. received a B.S. degree in electrical and computer engineering with a minor in scientific computer programming from California State Polytechnic University, Pomona in 2002. He received an M.S. in electrical engineering from the University of Southern California in 2010. He is a licensed professional engineer in the state of California. He is currently a Senior Engineer at Southern California Edison in Rosemead, CA.

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