

"PREDICTIVE ASSET AND OUTAGE MANAGEMENT"

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Summary. The issue of Big Data was introduced relatively recently (last 15 years) as the huge amounts of data became available through the space exploration, weather forecasting and medical biogenetic investigations. Social media and outlets such as Google, YouTube, Facebook and others have also faced similar problems of handling huge data sets. The utility industry is now experiencing access to huge amount of data obtained through field measurements and other sources.

The presentation will describe the development of a framework that ties big data and physical network components and events in order to improve asset and outage management practices in both transmission and distribution. The big data is used to develop: 1) optimized condition-based asset management capable of assessing equipment deterioration continuously across space and time, leading to an improved on-demand maintenance strategy; and 2) efficient outage management capable of predicting fault area in real time, and determining strategies to reduce outage duration and restoration time. The knowledge is presented in a spatiotemporal framework with highly accurate temporal and geographical referencing for correlating big data and the physical layout of the electricity grid. Multiple scenarios with time resolutions ranging from portion of a second to several days or months will be discussed.



Short Bio. Dr. Mladen Kezunovic is a Eugene E. Webb endowed Professor at Texas A&M University where he was employed since 1986. Dr. Kezunovic serves several leading roles at the university: Director, Smart Grid Center; Site Director, NSF Power Systems Engineering Research Center (PSerc), and Director, Power Systems Control and Protection Lab. He also acts as the Principal Consultant, as well as President and CEO of XpertPower™ Associates, which has been providing consulting services for utility industry for over 25 years. He worked for Westinghouse Electric in the U.S.A. as a Systems Engineer on developing the first all-digital substation design during 1979-1980 and for Energoinvest Company in Europe as the Technical Lead for substation automation development during 1980-86. He was a consultant for EDF's Research Centre in Clamart, France in 1999-2000 and was a Visiting Professor at the University of Hong Kong in fall of 2009. He also acted as a consultant to over 50 utilities and vendors worldwide, and served three terms (2009-2013) as a Director on the Board of Directors of the Smart Grid Interoperability Panel (SGIP) representing research organizations and universities.

Dr. Kezunovic was a Principal Investigator on over 100 R&D projects, published more than 500 papers and gave over 100 invited lectures, short courses and seminars around the world. He is an IEEE Fellow and Distinguished Speaker, CIGRE Fellow, and registered Professional Engineer in Texas. He is the recipient of the Inaugural 2011 IEEE Educational Activities Board Standards Education Award "for educating students and engineers about the importance and benefits of interoperability standards" and CIGRE Technical Committee Award for "remarkable technical contribution to the study committee B5, protection and automation" in 2013.