PSERC Power Systems Engineering Research Center

PSERC WEBINAR

Enhancing Power System Innovation Through the Use of Highly Detailed Synthetic Electric Grids

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A key challenge in doing effective electric grid research and education is lack of common access by researchers and educators to realistic electric grid models, scenarios and datasets. Industry often has these models and data, yet because of legitimate considerations much of this information cannot be effectively shared. Over the last few years this need is being addressed through research funded primarily by the US APRA-E on the development of large-scale, realistic, and now highly detailed synthetic electric grids. This talk covers some of the recent developments in this exciting field, including the creation, validation and application of these grids. Results are demonstrated utilizing synthetic electric grids with many thousands of buses in application areas including transient stability, geomagnetic disturbance analysis, visualization, and coupled infrastructure simulations. The talk also considers how synthetic grids can be used to demonstrate problems faced by industry, helping to develop new solutions to the large-scale, realistic problems faced by industry.

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Thomas J. Overbye is a TEES Eminent Professor in Electrical and Computer Engineering at Texas A&M University (TAMU). Prior to joining TAMU in January 2017 he was the Fox Family Professor of Electrical and Computer Engineering at the University of Illinois at Urbana-Champaign (UIUC). He received his BS, MS, and Ph.D. degrees in Electrical Engineering from the University of Wisconsin-Madison. He was employed with Madison Gas and Electric Company from 1983 to 1991. Dr. Overbye is the original developer of PowerWorld Simulator and co-founder of PowerWorld Corporation. He is also the recipient of the Alexander Schwarzkopf Prize for Technological Innovation, a University of Wisconsin-Madison College of Engineering Distinguished Achievement Award, the IEEE Power and Energy Society Outstanding Power Engineering Educator Award and is a member of the US National Academy of Engineering.