Third Smart Grid Workshop, Texas A&M University

Panel: Future Developments of Testbeds

Memorial Student Center, Room 2400
Tuesday, April 21, 2015, 15:30 – 16:30 pm

Future developments of testbeds from various aspects will be explored. The need for the testbeds differ from one application to the other and so development of a comprehensive testbed is a challenge. Many techniques are being developed for dealing with the complexity of cyberphysical energy systems. The testbeds can provide a platform for testing the capabilities of these techniques. Similarly, many innovative applications are being developed for the application of synchrophasors and these can be studied using testbeds. For developing such testbeds, simulators are needed and this topic will be explored.

Session Chair: Paul Boynton (Manager, Smart Grid Testbed, NIST)

Paul Boynton is the manager of the NIST Smart Grid Testbed, the lead in the development of the NIST CPS testbed, and a member of the NIST Smart Grid Team. From 2009 to 2014, he was the NIST program manager coordinating with the Smart Grid Interoperability Panel (SGIP). Mr. Boynton has been at NIST for the past 33 years. Initially, he worked in the area of DC-low frequency standards. For fourteen years, he had been a researcher in the Display Metrology Project at NIST, where he served as project leader. During that time, Mr. Boynton served as a technical expert for many standard developing organizations, including the ISO TC159/SC4/WG 2 (Visual display requirements), and the Society for Information Display (SID) International Committee for Display Metrology. He served as the chair of the SID Standards and Definitions Committee and chair of the Council for Optical Radiation Measurements (CORM) Electronic Displays Technical Committee. Mr. Boynton received his BSEE from Northwestern University.

Session Co-Chair: Chanan Singh (Professor, ECE TAMU)

Chanan Singh is currently Regents Professor and Irma Runyon Chair Professor in the Department of Electrical and Computer Engineering, Texas A&M University, College Station, Texas. He is also a Guest Professor at Tsinghua University, Beijing, China. His research and consulting interests are in the application of probabilistic methods to power systems. He has authored/co-authored numerous papers and three books and has contributed to several books. He has consulted with many major corporations and given short courses nationally and internationally.

Dr. Singh is a Fellow of IEEE and the recipient of the 1998 Outstanding Power Engineering Educator Award given by the IEEE Power Engineering Society. For his research contributions, he was awarded a D.Sc. degree by the University of Saskatchewan, Saskatoon, SK, Canada, in 1997. In 2008, he was recognized with the Merit Award by the
PMAPS International Society. In 2010, he was the inaugural recipient of the IEEE-PES Roy Billinton Power System Reliability Award.

Panelist: John Reynolds (President, Agile Fractal Grid), “Agile Architectures and Their Evaluations”

John Reynolds is president and founder of Integrated Architectures, a 20 year old systems implementation firm focused in the financial, telecommunications, and electric power industries. Integrated Architectures is the creator of the Agile Fractal Grid Corporation. Prior to Integrated Architectures, Mr. Reynolds held management positions for systems deployment at IBM and Honeywell.

Panelist: Bill Blevins (ERCOT), “Future Requirements for Evaluating and Field Testing of Synchrophasors”

Mr. Blevins is a native Texan from Port Lavaca, Texas. He is a Graduate of the US Navy Nuclear Power Engineering School. He has 27 years of power systems experience with 21 years in civilian commercial power systems and 6 years Nuclear Power Systems experience. He started his civilian career with Houston Lighting and Power and worked at South Texas Nuclear Power station in Bay City, Texas before moving into grid operations. Prior to coming to ERCOT, he held positions at North American Electric Reliability Corporation (NERC), as Manager of Interchange and then as Manager Business Practices. Before working at NERC he worked for Duke Energy as Manager Generation Control where he was responsible for control area operations in the Eastern and Western Power Grid. His current position is Manager Operations Planning at ERCOT. While at ERCOT he also served as Manager of Operations Support and was responsible for grid operations preparedness as ERCOT transitioned to the new Nodal Market in 2011.


Paul Skare is the Technical Group Manager and the Chief Cyber Security Program Manager in Electricity Infrastructure at the Pacific Northwest National Laboratory. Previously Paul worked for Northern States Power in the EMS support group for 4 years, and Siemens Energy for 26 years working in power applications, as the software development project manager for deregulated applications, as the R&D manager for SCADA, Product Lifecycle Manager for EMS and substation automation products, and most recently he was the Director of Cyber Security with P&L responsibility. Paul is the Convener of Working Group 19 in IEC TC 57 and a member of WG 13 & 15. Paul is a member of the IEEE PES and the worked in IEEE P1689, P1711, and P2030. Paul has a patent published on Cybersecurity for control systems. Paul has twice testified to the US Congress on cyber security for control systems. Paul has been active
Panelist: Jean Bélanger (OPAL-RT Technologies), “Real-Time Simulators, the Next Level”

Jean Bélanger is the co-founder, CEO and CTO of OPAL-RT TECHNOLOGIES. Founded in 1997, OPAL-RT develops and commercializes digital real-time simulators for system design and electronic controller testing.

Jean Bélanger received his Electrical Engineering degree in 1971 at Laval University, in Quebec City, and his Master’s degree from the École Polytechnique in Montreal.

Under his direction and technological leadership, OPAL-RT has become a well-known developer of state-of-the-art real-time simulators capable of simulating all types of mechanical and electrical systems, including the fastest power electronic converters used in a wide range of industries - from hybrid vehicles to entirely electrical-driven aircraft, and from micro-grids to very large AC/DC power systems.

Jean Bélanger began his career at Hydro-Quebec’s System Planning Division and at the IREQ where he contributed to the design and construction of Hydro-Quebec real-time simulators.

Today, Jean Bélanger foresees that high-end real-time simulators will soon be available to all engineers, scientists and students by taking full advantage of off-the-shelf PCs. This is the driving challenge that Jean Bélanger and the OPAL-RT team have taken as their primary goal.