



## Power Systems Engineering Research Center

# Meeting PMU Data Quality Requirements for Mission Critical Applications

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PSERC Public Webinar

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2:00-3:00 p.m. Eastern Time (11:00-12:00 p.m. Pacific)

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**Description:** Phasor Measurement Units (PMU's) provide synchronized measurements at high rates for wide area situational awareness and decision support for mission critical applications. High quality PMU data is vital for these applications, especially for real-time wide area control. PMU data quality can be impacted by filtering and estimation algorithms within the PMU, settings and firmware issues, time error, and errors caused by the communication system, data concentrator, and data historian. PMU performance testing before installation and remote in-field testing can ensure the data quality at the device level. Data cleansing efforts for streaming data need to be embedded locally, in a decentralized manner, and also at centralized control centers to support different possible applications using PMU data. Statistical and data mining approaches supported by physics can be adopted locally at the substation level while system level approaches are needed for decentralized and control center state estimation. This talk will present (1) research activities related to development of a PMU performance analyzer (PPA) tool for in-lab and remote, in-field testing; and (2) data mining approaches for data cleansing and for analyzing impacts of data quality on PMU applications. The talk will include a discussion of a real-time wide area monitoring and control test bed that will support the testing and validation of PMU's and PMU-based applications.

**Biography:** Anurag K. Srivastava is an associate professor of electric power engineering at Washington State University and the Director of the Smart Grid Demonstration and Research Investigation Lab (SGDRIL) within the Energy System Innovation Center (ESIC). He received his Ph.D. degree in electrical engineering from the Illinois Institute of Technology in 2005. He has worked as an assistant professor at Washington State University from 2010-2015, as an assistant research professor at Mississippi State University from 2005-2010, as a senior research associate at the Indian Institute of Technology, Kanpur, India, and as a research fellow at the Asian Institute of Technology, Bangkok, Thailand. His research interests includes power system operation and control using smart grid data. Dr. Srivastava is a senior member of the IEEE, chair of the IEEE Power & Energy Society's (PES) Student Activities Committee, co-chair of the Microgrid Working Group, past-chair of the IEEE PES Career

Promotion Subcommittee, and past vice-chair of the IEEE Synchrophasor Conformity Assessment Program. He is the recipient of the best paper award from the IEEE Industry Applications Society and is working closely with number of electric power companies. Dr. Srivastava is an associate editor of the IEEE Transactions on Smart Grid, an IEEE distinguished lecturer, and the author of more than 140 technical publications including a book on power system security.

**Registration for Webinar Participation:** None required. There is no charge for participating!

**Participation by Webinar:** There are several options for participating.

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**PSERC's Webinar Coordinator:** Tom Overbye, University of Illinois at Urbana-Champaign, [overbye@illinois.edu](mailto:overbye@illinois.edu)

Professor Overbye welcomes your feedback on PSERC webinars and suggestions for future ones.