Use of Synchrophasor Technology in Grid Operations

***Seminar* by** Dr Sarma (NDR) Nuthalapati
Jointly organized by Centre for Power Engineering at NTU and IEEE PES Singapore Chapter
Chaired by Prof Xu Yan, NTU

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Abstract: To realize the vision of the future smart electric grid, advanced technological solutions such as real-time measurements of synchrophasors need to be integrated into the existing power system operation and control practices. Phasor measurement units (PMUs) provide synchronized measurements at high rates for enhanced wide area situational awareness and decision support using new applications. There have been several large-scale implementations of synchrophasor technology in managing the grid across the world. Efforts are in place to take this technology into control room operations and develop good operational procedures to better manage the grid with wide area visualization tools using PMU data. This half-day tutorial presents some basics of synchrophasors and discusses some use cases of synchrophasors in managing the grid.

Speaker: Dr. Sarma (NDR) Nuthalapati is an independent consultant and an Adjunct Professor at Texas A&M University, College Station, Texas, USA. He is also an adjunct professor at National Institute of Technology, Warangal, India since Jan 2024. Earlier, he was at LCRA and ERCOT at Austin and at PEAK Reliability, Vancouver, which are Grid operators in USA. He is active in the IEEE and was involved in the working group for State Estimation and Smart Distribution Systems and led the IEEE Task Forces on 'Real-Time Contingency Analysis' and 'Synchrophasor Applications in Power System Operation and Control'. He is also active at the North American Synchrophasor Initiative (NASPI) Working Group meetings and was given NASPI Control Room Solutions Task Team (CRSTT) Most Valuable Player (MVP) Award (2015) and CRSTT Volunteer of the Year Award (2018), by the Department of Energy. He has many publications in IEEE Transactions and Conferences, and is the editor for the book on 'Power System Grid Operation Using Synchrophasor Technology' by Springer, June 2018 and for the book on 'Use of Voltage Stability Assessment and Transient Stability Assessment Tools for Grid Operations' by Springer, June 2021. He is currently working as co-editor for a book on 'Experiences on Use of State Estimator for Power System Operations' by Springer and will be available in a few months. He is a senior member of IEEE and a distinguished lecture in the IEEE PES Distinguished Lecturer Program (DLP). Dr. Sarma obtained is bachelor's and master's degrees from NIT Warangal, India and PhD from Indian Institute of Technology, Delhi, India, in 1983, 1986 and 1995, respectively.

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