Synchrophasor Initiative in India after 2012 Grid Disturbances, and Development of its Various Applications

Prof. Suresh Chandra Srivastava
Department of Electrical Engineering
Indian Institute of Technology Kanpur, India

Abstract:

Several events of blackouts in the recent past, worldwide including the major disturbances in India during July 2012, have necessitated the use of more intelligent and automated systems for online monitoring, and control of the power systems. Improving the system situational awareness and its stability are important to mitigate future vulnerability of the system. Wide Area Monitoring, and Control (WAMC) systems, employing synchrophasor technology, are being increasingly used in power system networks to achieve these objectives.

This talk will present some of the initiatives taken in India towards deployment of the WAMCS and research work carried out by the Power Systems group at IIT Kanpur on few synchrophasor applications, such as dynamic phasor estimation, avoiding unintended operation of distance protection and network control based Wide Area Damping Controller. It will also discuss the development of synchrophasor lab employing Real time Digital Simulator (RTDS) and validation of some of these applications in the real time simulation environment.

Biography:

Prof. Srivastava received B.Tech. degree in Electrical Engineering in 1976 from Institute of Technology, Banaras Hindu University, India and Ph.D. from Indian Institute of Technology (IIT) Delhi. He worked at Engineers India Limited New Delhi, a consultancy organization, during Nov.1976-Nov.1988 in its Project Engineering and Engineering Technology Development divisions. Since November 1988, he is a faculty member in the Department of Electrical Engineering at IIT Kanpur, where he became ‘Professor’ in Dec. 1995. He also served as Head of Electrical Engineering Department, Dean of Research and Development and Deputy Director at IIT Kanpur. During August 2008-July 2009, he was as a ‘Visiting Research Professor’ in the ECE Department at Mississippi State University, USA and also served as a Faculty member at Asian Institute of Technology, Bangkok, Thailand during 1996-97, on leave from IIT Kanpur. He held ‘P.K. Kelkar Chair Professor’ and is now holding ‘Ministry of Labour and Employment Chair’ position at IIT Kanpur.

He has supervised 25 Ph.D. and 60 Masters theses in the Power Systems area. He has published about 300 papers in refereed journals and conference proceedings. His research interests include Power System Stability and Security Analysis, Synchrophasor Applications, Power System Restructuring and AC/DC Microgrid. He is a Fellow of the Indian National Academy of Engineering (INAIE), Institution of Engineers (India) & IETE (India), and Senior member of the IEEE. He received IEEE PES ‘Outstanding Engineer Award 2012’ from PES/IAS Chapter, IEEE Uttar Pradesh Section and NPSC ‘Outstanding Academician Award’ in 2012.