



US-India CollAborative for smart DiStribution System wIth StOrage

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THE FUTURE OF ELECTRIC POWER IN THE US

~ by ~

JEFF DAGLE, PACIFIC NORTHWEST NATIONAL LAB (PNNL), ANJAN BOSE, WASHINGTON STATE UNIVERSITY (WSU), & ANURADHA ANNASWAMY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)

Thursday, March 25 • 9:00 AM – 10:00 AM (PT) • Join on [TEAMS](#)

OVERVIEW

As the US electricity grid continues to develop, long-term planning is complicated by a lack of consistency in policy and operations. A National Academy of Engineering Committee of experts spent two years gathering input and has developed a [comprehensive report](#) on the pressing challenges, forces and pressures acting on the US grid. Three members of this NAE Committee will offer a summary of key findings in the report related to sustainability, resilience, equity, reliability, and security.

SPEAKERS:

Speaker bios are included on the second page.



Anuradha
Annaswamy,
MIT



Anjan Bose,
WSU



Jeff Dagle,
PNNL



Dr. Anuradha Annaswamy is Founder and Director of the Active-Adaptive Control Laboratory in the Department of Mechanical Engineering at MIT. Her research interests span adaptive control theory and its applications to aerospace, automotive, and propulsion systems as well as cyber physical systems such as Smart Grids, Smart Cities, and Smart Infrastructures. Her current research team of 15 students and post-docs is supported at present by the US Air-Force Research Laboratory, US Department of Energy, Boeing, Ford-MIT Alliance, and NSF. She has received best paper awards (Axelby; CSM), Distinguished Member and Distinguished Lecturer awards from the IEEE Control Systems Society (CSS) and a PYI award from NSF. She is the author of a graduate textbook on adaptive control, co-editor of two vision documents on smart grids as well as the two editions of the Impact of Control Technology report, and a member of the National Academy of Sciences Committee on modernizing the US Electric System. She is a Fellow of IEEE and IFAC. She is currently serving as the President of CSS.

Dr. Anjan Bose is a Regents Professor and the Distinguished Professor of Electric Power Engineering at Washington State University in Pullman, Washington, where he also served as the Dean of the College of Engineering & Architecture from 1998 to 2005. He served the US Department of Energy as a Senior Advisor on the electric power grid in the Obama administration. He is a leading researcher on the operation and control of the electric power grid. He has worked in the electric power industry as well as academe for over 40 years. He received his BS, MS and PhD, all in Electrical Engineering, from the Indian Institute of Technology – Kharagpur, University of California – Berkeley/ and Iowa State University, respectively. Dr. Bose is a Member of the US National Academy of Engineering, a Foreign Fellow of the Indian National Academy of Engineering and a Fellow of the Institute of Electrical & Electronics Engineers (IEEE). He was the recipient of the Outstanding Power Engineering Educator Award, the Third Millennium Medal, and the Herman Halperin Electric Transmission & Distribution Award from the IEEE. He has been recognized by both Iowa State University and the Indian Institute of Technology with their distinguished alumnus awards. He has served on several editorial boards and on many national and international technical committees. He was appointed by the governor to the board of directors of the Washington Technology Center, and by the US Secretary of Energy on the committee to study the 1999 and 2003 power blackouts. He has served on several committees of the US National Academies including those for Engineering Education, Cybersecurity Research, Power Grid Security and America's Energy Future. He has consulted for many electric power companies and advised government agencies throughout the world.

Jeff Dagle has worked at the Pacific Northwest National Laboratory in Richland Washington, operated by Battelle for the U.S. Department of Energy (DOE), since 1989. During that time has had led numerous projects in the areas of transmission reliability and security. Recent project highlights include leading the North American SynchroPhasor Initiative (NASPI) and serving on the leadership team of the DOE Grid Modernization Laboratory Consortium, leading the multi-laboratory system operations and control technical area. In 2018 Mr. Dagle was named co-director of the Advanced Grid Institute, a joint institute with Washington State University. Other career accomplishments include leading the data requests and management task for the U.S.-Canada Power System Outage Task Force investigation of the August 14, 2003 blackout, supporting the DOE Infrastructure Security and Energy Restoration Division with on-site assessments in New Orleans following Hurricane Katrina in 2005, leading the team providing cyber security reviews for the DOE Smart Grid Investment Grants and Smart Grid Demonstration Protections associated with the American Recovery and Reinvestment Act of 2009, and serving as a member of the National Infrastructure Advisory Council (NIAC) study group that was formed in 2010 to establish critical infrastructure resilience goals. In 2014 Mr. Dagle was invited to serve on a National Academies of Science and Engineering committee to provide recommendations for the analytical research foundations for the next generation electric grid. In 2016 he was invited to serve on another National Academy committee focused on enhancing the resilience of the Nation's electricity system. And in 2019 he was invited to serve on a third National Academies study committee on the future of electric power in the United States. He is a Senior Member of the IEEE and a member of National Society of Professional Engineers (NSPE). He currently serves as the vice president for the eastern region of the Washington Society of Professional Engineers (WSPE). He received the 2001 Tri-City Engineer of the Year award by the WSPE, a Federal Laboratory Consortium (FLC) Award in 2007, and two R&D 100 Awards: in 2008 for the Grid Friendly™ Appliance Controller technology, and in 2018 for the Dynamic Contingency Analysis Tool. He holds several patents. He received B.S. and M.S. degrees in Electrical Engineering from Washington State University in 1989 and 1994, respectively, and is a registered professional engineer in the State of Washington.