



THE WSU-PNNL ADVANCED GRID INSTITUTE

US-INDIA COLLABORATIONS FOR ADVANCED DISTRIBUTION SYSTEMS & MICROGRIDS INCLUDING RENEWABLES & STORAGE

~ by ~

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~ and ~

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Tuesday, November 30 • 11:00 AM – Noon (PT) • **TEAMS ONLY**

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OVERVIEW

In 2017, the US-India collaborative for smart distribution system with storage (UI-ASSIST) was announced as the third collaborative project between Department of Science & Technology, GOI through Indo-US Science and Technology Forum and US Department of Energy under the Joint Clean Energy Research and Development Center program. UI-ASSIST is a \$30M, 6-year research project to leverage expertise in universities, national laboratories, research centers, electric utilities, and technology providers in the two countries to collaboratively develop local solutions with global impacts related to advanced green distribution systems, including microgrids, and to develop a future workforce that considers international perspectives. The UI-ASSIST team brings together 14 partners in India and 15 partners in the US for ambitious technology advancement goals. UI-ASSIST is one of the projects where WSU and PNNL are collaborating as part of the Advanced Grid Institute (AGI).

This presentation will be in two parts. Part #1 will be an overview of the project as well as discussion of key accomplishments to date. Part #2 will be a discussion of the AGI related collaborations between WSU and PNNL in the area of storage. Increasing adoption of variable generation technologies and dynamic changes in customer demand are creating the need for enhanced grid flexibility to ensure the continued reliability, resilience, and security of the electric power system. Batteries and other energy storage technologies that have the capability to both supply and absorb electrical power (bidirectional electrical energy storage) can provide the desired flexibility by buffering electrical supply and demand. This part of the talk will provide an overview of the DOE R&D being conducted at PNNL with specific emphasis on the modeling and valuation tools used for evaluating the techno-economic benefits of energy storage deployments. Examples within UI-ASSIST will be discussed.

BIOS

Dr. Noel Schulz is the Edmund O. Schweitzer III Chair in Power Apparatus and Systems with the School of Electrical Engineering and Computer Science, Washington State University (WSU), Pullman, WA, USA. She has been a Chief Scientist at the Pacific Northwest National Laboratory (PNNL) since February 2020, serving in joint appointment as part of the PNNL/WSU Advanced Grid Institute (AGI). In August 2021, she became Co-Director of AGI. She received BSEE and MSEE degrees from Virginia Tech, Blacksburg, VA, and PhD in EE from the University of Minnesota, Minneapolis, MN, USA. Dr. Schulz has been active for over 26 years in teaching, research and service at six US universities. Her



research interests include computer applications in power system planning and operations including AI techniques, renewable energy, storage and microgrids. She has been active in IEEE Power and Energy Society (PES) and served as IEEE PES and IEEE PES President in 2012 and 2013. She is an IEEE and ASEE Fellow. In 2021, she was elected to the Washington State Academy of Science.



Dr. Vince Sprenkle joined PNNL in January 2001 and is currently Technical Group Manager for the Electrochemical Materials and Systems Group at PNNL. This group is focused on the development of electrochemical materials and systems for advanced energy storage and conversion applications. He is also currently project manager for the Department of Energy - Office of Electricity Energy Storage Program at PNNL. This project is focused on the development of electrochemical energy storage technologies to enable renewable integration and to improve grid support. He previously led other projects in the development of solid oxide fuel cell (SOFC) technology and planar Na batteries. Prior to his arrival at PNNL, he was a senior ceramic engineer at Litton Life Support and was responsible for the development of prototype advanced electrochemical oxygen generating system. Dr. Sprenkle currently holds 14 US patents on fuel cells, batteries, and high temperature electrochemical devices with 22 pending patent applications. He was name PNNL Inventor of the Year in 2014 and has been recognized as key contributor on 4 licensing activities while at PNNL. He received a 2009 FLC award for Technology Transfer of Solid Oxide Fuel Cell Technology to Delphi Corporation.
