



THE WSU-PNNL ADVANCED GRID INSTITUTE



## AGI Director Candidate Interview Seminar

### THE ELECTRIC POWER GRID PUZZLE: MANAGING THE UNCERTAINTY OF THE PIECES WHILE ADVANCING SYSTEM RESILIENCY AND FLEXIBILITY

~ by ~

**DR. NOEL N. SCHULZ**  
Washington State University

Thursday, May 13 □ 10:30 AM ~ Noon (PT) □ [Click here to join Seminar](#)

#### Abstract

The engineering research challenges of the next 10 years for energy and electric power will be centered around the competing expectations of resiliency, reliability, and flexibility as well as increased decarbonization and “green power” requirements for a low-cost electric grid. Additionally, as shown by the recent challenges in Texas, the interdependencies within the energy ecosystem create different challenges and opportunities across various regional electric grids in the US. New pushes for increasing electric vehicle integration as well as hydrogen-based solutions will create additional demands and expectations for the electric grid infrastructure.

The traditional boundaries of generation, transmission, distribution, and load are being blurred as the electric grid evolves to include more storage, distributed energy resources, advanced power electronics interfaces, microgrids, smart buildings and other technology advances. The integration of cyber-physical systems along with advances in data analytics and artificial intelligence techniques provide opportunities for next generation modeling, simulation, control, and operation strategies for the electric grid.

This presentation will discuss the multi-faceted nature of these challenges and will highlight several WSU research efforts in related areas. In addition to specific research projects, the talk will include discussions on why the PNNL/WSU Advanced Grid Institute (AGI) is well positioned to lead regional and national research and development efforts to advance solutions related to complex power systems of the future and will highlight ideas for short-term and long-term activities to continue momentum in this direction.

#### Bio

**Noel N. Schulz** is the Edmund O. Schweitzer III Chair in Power Apparatus and Systems in the School of Electrical Engineering and Computer Science at Washington State University Pullman. She has been a Chief Scientist at the Pacific



Northwest National Laboratory (PNNL) since February 2020. She has a joint appointment at PNNL as part of the PNNL/WSU Advanced Grid Institute (AGI). In January 2020, she started her role as Interim Co-Director of AGI. Dr. Schulz has been active for over 26 years in teaching, research and service at six U.S. universities. In research and graduate studies, she has graduated 45 MS and 13 PhD students; published 175 papers and 2 book chapters; and brought in over \$40M in external research through individual and collaborative projects including a U.S. National Science Foundation CAREER award. She is the US administrative lead for the US DOE funded project, US-India Collaborative for Smart Distribution System with Storage (UI-ASSIST), involving 15 US partners including PNNL and 15 Indian partners. In addition to her technical and research leadership activities, Dr. Schulz has been very involved in activities related to the recruitment, retention and advancement of women and multicultural students and professionals in STEM careers. She is also an advocate for advancing power engineering workforce. Dr. Schulz was on the IEEE Power & Energy Society (PES) Governing Board from 2004-2015, serving as IEEE PES President 2012 and 2013.

Dr. Schulz's research interests include integration of DER into distribution systems including storage and electric vehicles; intelligent system applications in power system design, control, and operation; outage and storm management including smart metering and resilience efforts; rural electrification and microgrids; and shipboard power systems. She is a Fellow of IEEE and the American Society for Engineering Education.

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