

**PES Chapters Boise, Richland, Western Montana and Eastern Idaho**

**Grid Planning Case Studies of Renewable and Energy Storage Integration**

By

Dr. Xiaoyuan Fan

PNNL

**DATE**: **Thursday, November 14, 2024.**

**TIME:** **9:00 a.m. – 10:00 a.m., MDT**

**PLACE:** **Virtual Mtg. only**

**Registration required at:** <https://events.vtools.ieee.org/m/439654>

**Abstract**

Grid integration of renewable energy requires forward-looking planning process and increased emphasizes on reliability, resilience, and equity. Power-electronics based energy generation including solar, wind, distributed energy resources (DERs), and various types of grid-tied energy storage and emerging loads, are reshaping grid operator’s understanding on interconnection level performance and responses. Going forward, emerging artificial intelligence and deep integration of information technologies (IT) and OT, e.g., through the deep deployment of the fifth generation communication (5G) technologies, may inspire new perspectives and pathways to support developments of PE theory, modeling, lab-based testing and validation, and real-world implementation and demonstrations.Dr. Xiaoyuan Fan will present PNNL’s research work funded by U.S. Department of Energy, some of the highlights include research outcomes and collaborations on power electronics from DOE SC/ASCR 5G

**Speaker’s Bio**

**Dr. Xiaoyuan Fan** (xiaoyuan.fan@pnnl.gov) is currently a senior staff engineer and Power Electronics Team Leader at PNNL. Serving as a project manager, principal investigator/co-principal investigator and key contributor, he has been managing and supporting multiple research projects funded by the Department of Energy, Department of Homeland Security, Department of State, ARPA-E, Bonneville Power Administration, and other industrial collaborators. His research interests focus on data analytics for power system reliability, wireless communication, multi-discipline resilience analysis, and high-performance computing. He is a senior member of IEEE, and serves as a volunteer reviewer of 20+ top-level journals and conferences in power systems and signal processing. He is the recipient of the 2024 Secretary of Energy’s Honor Award, the 2024 R&D 100 Award, 2024 IEEE PES GM Best Paper Award, 2021 Federal Laboratory Consortium for Technology Transfer Award, and four Energy and Environment Directorate Outstanding Performance Awards. He received his PhD in electrical engineering from the University of Wyoming and MS and BS degrees in electrical engineering from Huazhong University of Sciences and Technology.

