

Transforming the Northwest Energy System

NWESS 2026



University of Washington
Alder Hall
April 1-2, 2026



Speaker: Fei Ding

Title: Managing Distributed Energy Resources to Improve Grid Reliability, Affordability, and Resilience

Abstract: Distributed Energy Resource Management Systems (DERMS) have emerged as a critical platform for coordinating distributed energy resources to support grid reliability, affordability, and resilience. This presentation provides an overview of the current state of the DERMS market. Building on this foundation, the talk then introduces an advanced, utility-validated DERMS framework that integrates high-fidelity digital twins, real-time data analytics, and advanced DER controls to enable scalable, secure, and interpretable DER coordination. Through real-world use cases and field-tested demonstrations, the presentation illustrates how coordinated management of distributed generation, storage, and flexible demand can reduce operational costs, mitigate congestion and voltage violations, enhance outage response, and extend islanded microgrid survivability.

Bio: Dr. Fei Ding is a Distinguished Member of Research Staff and Manager of the Grid Automation and Controls Group at the National Laboratory of the Rockies (formerly NREL), where she leads a team of 20 researchers and scientists developing advanced grid modernization technologies to enhance power system reliability, resilience, and intelligence. Over her 11-year tenure, she has led more than 15 collaborative projects with utilities and technology vendors to design, validate, and deploy innovative distributed energy resource solutions. She is a recipient of the Rising Star, Chairman's, and President's Awards at NLR and is an IEEE Senior Member. She serves as an Associate Editor for *IEEE Transactions on Smart Grid*, *IEEE Transactions on Power Systems*, *IEEE Power Engineering Letters*, and *IET Generation, Transmission, and Distribution*, and holds multiple leadership roles within IEEE PES.

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