THE WSU-PNNL ADVANCED GRID INSTITUTE

RESILIENT COMMUNITIES VIA RISK-DRIVEN INFRASTRUCTURE PLANNING AND AUTOMATED RESTORATION

~ by ~

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Tuesday, April 25 • 11:00 AM – Noon (PT) • TEAMS

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ABSTRACT

Electric power grids face severe threats from extreme weather events leading to extended disruptions in power supply, adversely affecting personal safety and national security. The staggering cost of outages and their impacts on personal safety demands expedited incorporation of resilience in aging and stressed power distribution systems towards these high-impact low-probability (HILP) events, especially those supplying underserved communities that are at a higher risk of observing widespread outages. Fortunately, recent advances in the distribution grid, including the integration of distributed generation (DGs) and distribution automation capabilities, provide potential means to improve system resilience if applied in a purposeful and methodical manner. This talk will introduce a recently funded effort by the US Department of Energy, Solar Energy Technology Office, under Renewables Advancing Community Energy Resilience (RACER) program. The project aims at *improving the grid resilience for underserved communities primarily affected by high-speed wind hazards* using metrics-driven distribution system planning and DG-assisted automated restoration. We will target a low-income focus area in the City of Rockford within ComEd's service territory for the deployment and field demonstration of the proposed innovations.

BIOS

Dr. Anamika Dubey is Huie-Rogers Endowed Chair Associate Professor of Electrical Engineering in the School of EECS at WSU-Pullman. She also holds a joint appointment as a Research Scientist at the PNNL. Her research is focused on the model-based and data-driven methods for decision-support in large-scale electric power distribution systems for improved efficiency, operational flexibility, and resilience. She is the recipient of the National Science Foundation (NSF) CAREER Award and is currently leading several high-impact projects funded by DOE, NSF, and power industry.

Dr. Wei Du is a staff research engineer at the PNNL. His main areas of research are control design, modeling, and simulation of power systems with high penetration of power electronics devices. He currently serves as the Principal Investigator for multiple DOE projects that focus on studying the impacts of high penetration of inverter-based resources on the transient and dynamic behaviors of power systems at different scales. He is the technical lead of the Modeling and Simulation Area of the Universal Interoperability for Grid-Forming Inverters (UNIFI) Consortium co-funded by the DOE solar and wind offices. He serves as an Associate Editor of IEEE Transactions on Smart Grid.