



# PSERC WEBINAR

## Network-level Optimization for Unbalanced Power Distribution Systems

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The U.S. power grid is rapidly evolving from a network characterized by large, centralized fossil-fueled generation plants and passive customers to a system with significant distributed energy resources (DERs) and proactive customers. A critical aspect of these rapid transformations is a large amount of demand and generation variability introduced in the power distribution systems leading to unprecedented operational challenges. A reliable and efficient grid operation requires effective management of the distributed energy resources via coordinated control of the grid's decision-making agents. Driven by the availability of network models, granular measurements, remote control capabilities, and advanced analytics, model-based methods have recently emerged as a viable mechanism to optimize grid operations. This talk will present network-level optimization methods for large-scale multi-phase unbalanced power distribution systems. The proposed algorithms to achieve scalability, the specific applications, and results will be detailed, followed by remaining challenges and the direction for future work.

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**Anamika Dubey** received a Ph.D. degree in Electrical and Computer Engineering from the University of Texas at Austin in 2015. Currently, she is an Assistant Professor in the School of Electrical Engineering and Computer Science at Washington State University, Pullman, WA. Her research interest is on the analysis, operation, and planning of the modern power distribution systems for enhanced service quality and resilience. She is a member of IEEE, IEEE Power and Energy Society (PES), IEEE Women in Power (WIP), IEEE Women in Engineering (WIE). She is serving as Secretary of IEEE Working Group on Distribution Management Systems and PES Chapter Chair of IEEE Palouse Section.

