Recruiting Distributed Resources for Grid Resilience: The Need for Transparency
Invited Abstract

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Abstract
Technologies for distributed energy resources including renewable generation, advanced inverters, electric storage, vehicle charging and load controls are rapidly maturing. To date, increasing penetration levels especially of solar DG and electric vehicles are primarily seen as a challenge to the legacy distribution infrastructure. In the long run, of course, distributed resources should serve as an asset to the grid: not only to optimize environmental and economic performance under expected operating conditions, but perhaps even more importantly to support a resilient grid, or islanded portions thereof, in the face of extreme events and emergencies.

This panel presentation argues that a crucial step toward this goal is to improve the visibility and transparency of distribution systems. Smart operational decisions, whether reconfiguring network topology or dispatching diverse micro-resources, hinge on situational awareness, or an accurate reading of network conditions. This presentation will discuss physical monitoring and data analysis, including the use of high-precision synchrophasors (PMUs), to help expand the range of options for operating flexible and resourceful distribution systems under uncertain and changing conditions.