

MAR15-2014-020220

Abstract for an Invited Paper  
for the MAR15 Meeting of  
the American Physical Society

**Electric Distribution Grid Resilience R&D by the U.S. DOE**

DAN TON, U.S. Department of Energy

The U.S. Department of Energy's Smart Grid Research and Development Program is undertaking R&D to modernize the distribution portion of the electricity delivery system. Key characteristics of a modernized electric distribution grid include reliability, efficiency, affordability, flexibility, and resilience of electricity delivery for all end uses. To address resilience, the Program has established a focused R&D area in FY15 aiming to reduce social consequences (economic, safety, and security) from extreme weather threats. This focus area was developed as the result of an established process in which the Program engaged national labs, universities, utilities, and other industry stakeholders to jointly envision the future state of a resilient grid, to identify R&D areas and activities of priority, and to define performance metrics and associated targets. This presentation will cover the development of the electric distribution grid R&D focus area to date, including its key elements in resilience metrics, enhanced system designs, improved preparedness and mitigation measures, and improved system response and recovery. Key findings from a stakeholder workshop and the year-one Quadrennial Energy Review (QER) report by federal agencies will be summarily presented. Further, examples of ongoing projects in this focus area supported by the Program will be featured. The presentation will conclude with highlighting some key activities planned by the Program for the near future.