The Nimble Distribution Grid: Challenges and Vision

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Abstract

The need for a “smarter grid” to enable more diverse and renewable resources is almost a cliché – although the specific goals and challenges of joining today’s information technology with legacy electric power systems are far from obvious. Moreover, local distribution systems have some particularly tricky characteristics compared to long-distance, high-voltage transmission in terms of visibility and controllability. This talk will suggest a vision for how, in a world of decarbonized energy, we might want distribution systems to look, and discuss some of the difficulties and opportunities along the way.

Biography

Dr. Alexandra “Sascha” von Meier is Co-Director for Electric Grid Research at the California Institute for Energy and Environment (http://uc-cilee.org), and Adjunct Associate Professor in the Department of Electrical Engineering and Computer Science at UC Berkeley. She currently studies technical and operational issues related to the integration of high levels of renewable resources in “smart grids,” particularly through advanced instrumentation of power distribution circuits that increases their visibility to operators. Her past research has addressed engineering and cultural dimensions of energy technology, including electric power distribution, grid-connected photovoltaics, electric demand response, nuclear power plant operation, nuclear materials management, and green building performance. Her textbook, Electric Power Systems: A Conceptual Introduction (Wiley-IEEE, 2006), has been used in university courses and industry to help explain the complexities of operating the electric grid. An award-winning educator, she regularly presents tutorials on electric power delivery to academic and professional audiences. Sascha received her Ph.D. in energy and resources (1995) and her B.A. in physics (1986) from the University of California, Berkeley. Away from the office, she enjoys cycling, rock climbing and the mountains whenever possible.