



Distribution System Analysis Tools for Studying High Penetration of PV with Grid Support Features

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Description

Large penetration levels of distributed renewable resources in power distribution systems, especially photovoltaic (PV) generators, may require significant changes to the design, operation, protection and control of the distribution systems. In order to understand and analyze the impact of high penetration of inverter-interfaced PV with sophisticated grid support features, it is essential to have a distribution system analysis tool capable of modeling the complex static and dynamic behavior of these devices and the distribution system under a wide range of time scales. This webinar will discuss the capabilities of popular analytical tools, and introduce some new techniques, algorithms and models for static, quasi-static and transient analysis. In particular the implementation of feeder, PV and load models in static and transient analysis tools directly from GIS and AMI data, network reduction techniques, and transient simulation using dynamic phasor approach will be discussed. The use of these methods in the study of an actual high penetration PV implementation in a feeder in AZ, and the validation with extensive field measurements will be presented.

Biography

Raja Ayyanar received the Ph.D. degree from the University of Minnesota, Minneapolis in 2000. He is presently an Associate Professor at the Arizona State University, Tempe, AZ, USA. His current research interests include power electronics and grid integration of renewable resources mainly solar PV and wind. Dr. Ayyanar received an ONR Young Investigator Award in 2005. He serves as an Associate Editor for IEEE Transactions on Power Electronics (Letters).

Registration for Webinar Participation: None required. There is no charge for participating!

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Ajjarapu welcomes feedback on the webinars and suggestions for future ones.