



FAULT RESILIENT INVERTER-BASED RESOURCES IN WEAK POWER GRIDS

~ by ~

SAEED LOTFIFARD
Energy Systems Innovation Center
Washington State University

Tuesday, April 4 • 11:00 AM – Noon (PT) • EME 26

OVERVIEW

To enable massive grid integrations of inverter-based resources (IBRs) such as wind and solar power generations, high voltage DC (HVDC) systems and battery energy storages, several operational security challenges need to be addressed. Specifically, control strategies should be implemented to enhance the fault resilience of IBRs when the system strength reduces suddenly due to faults and outages of lines.

This talk discusses our proposed control strategies to enable seamless operation of IBRs in facing large disturbances due to faults in weak power grids. Some real-world examples of the challenges will be discussed, and our proposed solutions will be presented. The proposed solutions do not require a total replacement of IBRs well-established control strategies as they are designed to target the shortcomings of the existing controllers while preserving their strengths. This feature of the proposed methods makes them suitable for real-world applications.

BIO

Dr. Saeed Lotfifard is an Associate Professor in the School of Electrical Engineering and Computer Science at Washington State University. He received his Ph.D. in electrical engineering from Texas A&M University in 2011. His research interests include protection, stability, and control of inverter-based power grids. Dr. Lotfifard is a senior member of IEEE and serves as an associate editor for the IEEE Transactions on power delivery and IEEE Transactions on sustainable energy.

