



MONITORING ANALYSIS AND MITIGATION OF OSCILLATIONS IN POWER SYSTEMS

~ by ~

EVANGELOS FARANTATOS
Senior Principal Team Lead
Electrical Power Research Institute (EPRI)

Tuesday, October 10 • 11:00 AM – Noon (PT) • EME 26

OVERVIEW

Poorly damped or undamped oscillations present a significant threat to the secure and economic operation of power grids. The number of oscillation events and their severity have been increasing, due to stressed and atypical grid operating conditions and changing resource mix with the increasing integration of renewables and retirement of conventional generators. In conventional power grids, power system stabilizers (PSS) on conventional generators have been used to suppress oscillations. However, the retirement of conventional plants is expected to result in insufficient stabilizing capability from the remaining generators, the location of which may also render them inappropriate to suppress these oscillations. Phasor Measurement Units (PMUs) and Synchrophasors is an emerging technology for grid monitoring and control. With PMUs due to the high resolution and GPS synchronized measurements oscillations can be monitored. This presentation will summarize recent EPRI's work on the topic of oscillations mitigation and control.

BIO

Dr. Evangelos Farantatos received the Diploma in Electrical and Computer Engineering from the National Technical University of Athens, Greece, in 2006 and his M.S. and Ph.D. degrees from the Georgia Institute of Technology, Atlanta, GA, in 2009 and 2012, respectively. He is a Sr. Principal Team Lead with the Transmission Operations and Planning R&D Group at EPRI, Palo Alto, CA.



He is managing and leading the technical work of various R&D projects related to synchrophasor technology, power systems monitoring and control, power systems stability and dynamics, renewable energy resources modeling, grid operation, protection and control with high levels of inverter-based resources. He is a Senior Member of IEEE and a member of the NASPI leadership team.