Texas A&M Energy Institute

Distinguished Lectures in Energy

TEXAS A&M UNIVERSITY Energy Institute

Is Power Electronics Undermining the Reliability of the Grid

Dr. Mark O'Malley

Leverhulme Professor of Power Systems
Imperial College London

Fellow, Hagler Institute for Advanced Study
Texas A&M University



October 8, 2026

3:00 p.m. – 4:00 p.m. CDT (UTC -5:00)

Frederick E. Giesecke Engineering Research Building Third Floor Conference Room and Zoom

Abstract

Inverter-based resources (IBRs) is the term used to describe grid assets such as wind, solar, batteries, data centres, etc. that are connected to the grid by power electronics. As variable renewables (wind and solar photovoltaics (PVs)), batteries and data centres increase their penetration in the grid, a new form of instability is emerging. This instability is IBR-driven and is already resulting in many instances of sub-synchronous oscillations (SSOs) on grids worldwide. SSOs have always been a feature of grids, but these IBR-driven SSOs are different in their nature and their characteristics. System operators globally are rushing to try to detect, mitigate, and manage these SSOs. This presentation will highlight a comprehensive end-to-end, multilayered mitigation strategy being developed at Imperial College London in collaboration with the Global Power System Transformation and multiple system operators worldwide. Preliminary results will be presented, and future research directions will be highlighted.

Register Now

Biography

Mark O'Malley is the Leverhulme Professor of Power Systems at Imperial College London. He is a co-founder of the Global Power System Transformation Consortium, Global Director for the international research centre, Electric Power Innovation for a Carbon-free Society (EPICS) Center, and a Hagler Fellow at Texas A&M. He is a Foreign Member of the US National Academy of Engineering, a member of the Royal Irish Academy, a Fellow of the Institute of Electrical and Electronic Engineers, a foreign fellow of the Chinese Society for Electrical Engineering, and has received two Fulbright Fellowships.