



學術報告

Defending Against False Data Injection Attacks on Power System State Estimation



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Biography: Ruilong Deng received B.S. and Ph.D. degrees both from Zhejiang University. He was a Visiting Scholar at Simula Research Laboratory, Norway and University of Waterloo, Canada. He was a Research Fellow at NTU, Singapore. Currently, he is an AITF Postdoctoral Fellow with the Department of ECE, University of Alberta, Canada. His research interests include smart grid, cyber security, and WSNs. Dr. Deng currently serves as an Editor for IEEE/KICS JCN, and a Guest Editor for IEEE TETC and JCNC. He also served as a Committee Member for GLOBECOM, ICC, SmartGridComm, SGSC, etc. He is the recipient of the IEEE PES-GM 2016 Best Papers Award, and the author of 3 ESI Highly Cited Papers.

This talk investigates the problem of defending against false data injection (FDI) attacks on power system state estimation. Our contributions focus on designing the least-budget defense strategy to protect power systems against FDI attacks. We also extend to investigate choosing which meters to be protected and determining how much defense budget to be deployed on each of these meters. We further formulate the meter selection problem as a mixed integer nonlinear programming problem, which can be tackled by Benders' Decomposition. Extensive simulations are conducted to demonstrate the advantages of the proposed approach in terms of computing time and solution quality, especially for large-scale power systems.