

# Technical Talk on

## Enabling Control Systems in Power Grids with High Renewable Penetration

**Date:** Tuesday, January 29, 2019

**Time:** 4:00-5:00 pm

**Venue:** National University of Singapore  
Seminar Room E1-06-05, Block E1, Faculty of Engineering,  
National University of Singapore

*\*Light Refreshments will be provided.*

**Presenter:** **Joe H. Chow,**  
Institute Professor, Electrical, Computer, and Systems Engineering,  
Rensselaer Polytechnic Institute,  
Troy, NY 12180-3590, USA.

### ***Jointly Organized By:***

**Green Energy Management and Smart Grid Research Center (GEMS),**  
Department of Electrical & Computer Engineering,  
National University of Singapore

and

**IEEE Power & Energy Society, Singapore Chapter and  
IEEE PES National University of Singapore Student Branch**

### **ABSTRACT**

By 2030, many power grids will operate with more than 50% renewable penetration (primarily wind and solar). The system operation issues of concern include frequency control, damping control, voltage stability, automatic generator control, and minimizing renewable resource curtailment in system dispatch and operation. Despite some dire predictions, by enabling control systems in renewable resources, many of the challenging operating issues can be overcome. This talk will provide an overview of the research undertaken at RPI and the CURENT ERC to take advantage of the controllability offered by renewable resources for improved power grid performance.

## **BIOGRAPHY:**



Joe Chow is Institute Professor, Electrical, Computer, and Systems Engineering, at Rensselaer Polytechnic Institute, Troy, New York. He is also the RPI campus director of the NSF/DOE Engineering Research Center on Ultra-Wide-Area Resilient Electric Energy Transmission Networks (CURENT). His research interests include modeling and control of power systems and synchrophasor measurements. He has published over 300 journal and conference articles. He is a coauthor of the books “Power system coherency and model reduction” and “Power system dynamics and stability: with synchrophasor measurement and power system toolbox.”

Joe Chow obtained his MS and PhD degrees in Electrical Engineering from the University of Illinois, Urbana-Champaign. Prior to RPI, he was an application engineering in the General Electric power system business. He also spent a sabbatical year working in the market design group at New York Independent System Operator (NYISO). He is a fellow of IEEE and a member of the US National Academy of Engineering. He is a recipient of the Donald Eckman award from the American Automatic Control Council, and the Charles Concordia Power System Engineering Award from the IEEE Power and Energy Society.