Recent Advances in Solving OPF and Robust UC

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2:00-3:00 p.m. Eastern Time (11:00-12:00 p.m. Pacific)

Description: In this webinar, I will present recent advances in solving large-scale Optimal Power Flow (OPF) problems and robust power system operations. In the first part of the talk, I will present new convex relaxation methods based on strong second-order cone programming (SOCP) relaxation for OPF. Extensive experiments show the proposed SOCP relaxations produce very high quality solutions compared to the traditional SDP relaxations and can be orders of magnitude faster. In the second part of the talk, I will present our recent work on robust optimization for the unit commitment (UC) problem. We propose effective control policies and develop efficient algorithms that can solve multistage robust UC problems in real-world power systems in a time framework suitable for today's industry practice.

Biography: Andy Sun is an assistant professor in the H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology. He received his doctoral degree from Massachusetts Institute of Technology. His research interests are in the areas of robust and stochastic optimization, large-scale non-convex optimization, and mathematical modeling of electric energy systems. Dr. Sun's research has won several awards, including the INFORMS Georgia B. Dantzig Doctoral Dissertation Award, the INFORMS Junior Faculty Interests Group (JFIG) Paper Competition, and the INFORMS ENRE Best Publication in Energy. Dr. Sun has been working with several leading utility companies such as the ISO New England and the Southern Company on robust power system operations. Dr. Sun is an IEEE Senior Member.