Electrical & Computer Engineering

S E M I N A R

Louisiana State University

A Horizontal Time Decomposition Strategy for Multi-Interval Scheduling of Power Systems

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Abstract—In this presentation, a horizontal time decomposition and distributed coordination strategy will be introduced to reduce the computation time of power system multi-interval scheduling problems. The considered scheduling horizon is decomposed into multiple smaller sub-horizons. The concept of overlapping time intervals is introduced to model ramp constraints of generating units for transition from one sub-horizon to another sub-horizon. A sub-horizon includes n internal intervals and one or two overlapping time intervals that interconnect consecutive sub-horizons. A local optimization problem is formulated for each sub-horizon with respect to internal and overlapping intervals variables/constraints. The overlapping intervals allow modeling intertemporal constraints between the consecutive sub-horizons in a distributed fashion. To coordinate the subproblems and find the optimal solution for the whole operation horizon distributedly, accelerated auxiliary problem principle is developed. Furthermore, we present an initialization strategy to enhance the convergence performance of the coordination strategy.

Bio—Farnaz Safdarian is currently a Ph.D. student in the Division of Electrical and Computer Engineering at Louisiana State University. She has received her B.S. and M.S. degrees from Shahid Beheshti University and Amirkabir University of Technology (Tehran Polytechnic), Iran, in 2011 and 2014, respectively. Her research interests include power systems operation and planning, decentralized/distributed optimization, smart grids, renewable energy, HVDC systems, and power electronics.

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Where: Room 3250H Patrick F. Taylor Hall
Info: `https://www.lsu.edu/eng/ece/seminar`
Food: ***Pizza will be served.***