Power Systems Dispatch Optimization Methods for Thermal and Electrical Systems with Storage

Presented by
Nadia Panossian, PhD Candidate in Mechanical Engineering
School of MME, Washington State University, Pullman

Abstract
There are many opportunities for independent power providers to reduce cost of providing energy to their campuses while coordinating with larger utilities. When thermal loads are considered in conjunction with electrical loads more opportunities are available, but dispatching generation and storage systems becomes more complex. There are several methods of reducing dispatch costs while assuring power stability, each with their own advantages and shortfalls, including linear programming, quadratic programming, conic programming, search based methods, machine learning, and transactive control. These methods are developed and evaluated for application to AC power systems with heating and cooling distribution and thermal energy storage.

Biography
Nadia completed her undergraduate degree at University of Maryland and her masters at WSU, Pullman where she is currently pursuing her PhD. She has interned with Sandia National Labs where she developed a method for identification and analysis of wind turbine wakes for wake steering. She also interned with the Pacific Northwest National Labs where she developed a transactive control method for integration of thermal loads and a linear programming method for incorporation of day ahead commitment. She has previously worked for Baltimore Gas and Electric and Siemens Energy Inc.