Title: Electric Vehicle Aggregator/System Operator Coordination for Charging Scheduling and Services Procurement

Speaker: Miguel Ortega-Vazquez, Research Assistant Professor, University of Washington

Location: SMI 102, UW campus

Map: http://www.washington.edu/maps/?l=SMI

Time and Date: 4:30 PM, Thursday, September 27, 2012

Abstract:

In response to the need for the decarbonization of the transport sector, it is expected that large fleets of electric vehicles (EVs) will constitute an important share of the electricity demand. This evolution is likely to be accompanied by a parallel evolution of the electricity supply business with the deployment of smart grid technologies. As a consequence, it is expected that demand will feature higher potential for communication and control, which will enable its active participation in the daily operational planning of power systems. In particular, EVs being equipped with a battery can both defer their demand or inject electricity back into the system. However, to achieve volumes that can have an impact on the system, these demands need to be aggregated and operated as an ensemble. This paper proposes the necessary adaptations to include the input of EV aggregation to electricity markets. This permits the scheduling of EV charging and services in coordination with the system operator thus enhancing the power system’s efficiency and security while reducing its environmental impact. Results show that the EVs penetration levels that the system would be able to absorb without requiring expansion of the supply side, are significantly increased when coordination over their charging schedule is performed.

Miguel Ortega-Vazquez is a Research Assistant Professor in the Electrical Engineering Department at the University of Washington, having previously worked in Sweden and the United Kingdom.