Plug-in Vehicles: The Need for Advanced Computational Methods and Intelligence

Dr. Ganesh Kumar Venayagamoorthy

Date:
April 30 (Fri)

Time:
5:30 - 6:15 Planning Meeting
6:15 Doors Open
6:30 Buffet Dinner $20
Presentation following Dinner

Location:
Engineers Club of St. Louis
4359 Lindell Blvd

Must RSVP Before April 30:
314-533-9333
kurt.krispin@engineersclub.net

Pay at the door $20.

Vegetarian available upon request with RSVP.

Abstract

The modern electric power grid with renewable energy resources is a complex adaptive system under semi-autonomous distributed control. It is spatially and temporally complex, non-convex, nonlinear and non-stationary with a lot of uncertainties. The integration of plug-in hybrid and electric vehicles increases the complexity and challenges to the various controllers at all levels of the power grid. Charging large number of electric vehicles randomly or simultaneously without an intelligent infrastructure will increase the load on the electric grid causing adverse effects and increase in cost of electric vehicle usage. Intelligent scheduling of vehicles for charging and dynamic load forecasting will become of vital importance. On the other hand, electric vehicles with the use of vehicle-to-grid technology (V2G), information technology and advanced computational methods can provide short term real and reactive power support to overcome the drawback of the intermittent nature of wind and solar power resources.

This talk will present the potentials and promises of advanced computational methods and intelligence to mitigate the impact and exploit the benefits of integration of plug-in vehicles on the smart grid.

Speaker

Ganesh Kumar Venayagamoorthy received his Ph.D. degree in electrical engineering from the University of KwaZulu Natal, Durban, South Africa, in Feb. 2002. Currently, he is an Associate Professor of Electrical and Computer Engineering, and the Founder and Director of the Real-Time Power and Intelligent Systems (RTPIS) Laboratory at Missouri University of Science and Technology (Missouri S&T).

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