



Power Systems Engineering Research Center

The Case for Plug-In Hybrid Electric Vehicles

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Research Tele-seminar

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

Description

This seminar will focus on the benefits of hybrid-electric powertrain technology to help achieve energy security. The pure battery-electric vehicle, known as a ZEV (zero-emission vehicle) uses no petroleum-based fuel, but has range limitations due to long refueling (i.e. recharging) times. The hybrid-electric vehicles (HEVs) now on the market all use only a single petroleum-based fuel with their batteries maintained around a high constant state-of-charge by electric energy generated from the IC engine and from regenerative braking. A methodology that involves a combination of these two technologies of ZEVs and HEVs is the only near-term solution that will significantly reduce oil consumption. This methodology, known as a plug-in hybrid vehicle (PHEV), uses grid-supplied electric energy as a second on-board energy source. With more battery capacity, in average urban driving, a properly designed PHEV is capable of substituting approximately 70% of the gasoline or diesel fuel used by a conventional vehicle with grid-supplied electric energy. In addition, a PHEV can operate in a charge-sustaining mode thus allowing for long distance trips. PHEVs would provide a very significant load for off-peak power. A second aspect of PHEVs connected to the grid during peak load conditions is as a possible source for emergency peaking generation operating in a mode known as vehicle-to-grid (V2G) where off-peak stored energy is inverted back into the grid during peak-load emergencies.

Biography

Jerome Meisel is a Part-Time Professor in the School of Electrical & Computer Engineering at Georgia Institute of Technology. He is also Professor Emeritus at Wayne State University. Professor Meisel has been a Visiting Professor at Imperial College in London, England, and at the Technion in Haifa, Israel. He started his career on the EE faculty at Case Institute in Cleveland, Ohio followed by an industrial position as a Member of the Technical Staff at Bell Labs in Holmdel, New Jersey. His major research interest over the past fifteen years has centered on the electromechanical system issues related to hybrid-electric powertrains. He served as faculty advisor to student teams at Wayne State and Georgia Tech that participated in the DOE sponsored Hybrid Vehicle Challenges (1993 & 1995) and the FutureTruck Competitions (2000 – 2004), respectively. He holds a BSEE degree and a PhD degree from Case Institute and an MSEE degree from MIT.

Participation by Webcast: You can now participate in PSERC tele-seminars via webcast. Before the tele-seminar, [click here then on 12/4/07 when the status is "In Progress"](#) . Equivalently, you can go to <http://tinyurl.com/28kvqv> and click on 12/4/07. Note that the web page at that address does not automatically refresh. The webcast will include the audio and the slides so you will not have to download the slides in advance. You will need to use a Windows machine. It is also preferable to use Internet Explorer as your browser. If you want to ask questions, you should register for phone participation so that you will have the information to call in when the Q&A begins.

Participation by Phone: Live audio will be provided via a teleconference phone bridge. After registering, you will be sent connection information for the conference phone bridge. You will need to follow along with the presentation slides. The presentation slides will be posted on December 4 on the [PSERC website](#). The archived audio-slide production of the tele-seminar will be available by web-streaming a day after the tele-seminar. There is a 30 to 40 second delay between the real-time presentation and the webcast, so if you listen in on the phone bridge, you will need to download and display the slides locally.

Registration for Webcast Participation: Not required.

Registration for Phone Participation: To indicate that your organization would like to have a phone access line, send an email to Theresa.Herr@asu.edu with the subject "Meisel Seminar". To use our limited phone bridge capacity efficiently, we ask that people in an organization meet together to participate rather than calling in separately, if at all possible. Connection information will be sent before the seminar. There is no charge for participating!

Professional Development Hour Certification: PDH certification is available for PSERC members (only). Send an email requesting PDH certification to Theresa.Herr@asu.edu with the subject "PDH" after the seminar. *Include the name and title of each participant.*

Seminar Logistics and Assistance

Connection information will be emailed to you after you submit your request. If you have any questions, please contact Theresa Herr, PSERC's administrative assistant, at 480-965-1643 or Theresa.Herr@asu.edu. You can also contact Dennis Ray, PSERC Executive Director, at 608-265-3808 or djay@engr.wisc.edu.

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Shmuel welcomes feedback on the tele-seminars and suggestions for future ones.