



**ANSI Workshop  
Standards and Codes for  
Electric Drive Vehicles**

**AGENDA**

Tuesday – Wednesday, April 5 – 6, 2011  
9:00 a.m. – 5:00 p.m.

Bethesda North Marriott  
5701 Marinelli Road  
Bethesda, MD 20852

*This two-day workshop will consider the codes, standards, and related conformity assessment programs needed to facilitate the successful introduction and widespread acceptance and deployment of light-, medium-, and heavy-duty on-road electric drive vehicles (EDVs) – vehicles that must be connected to the electric grid for recharging of their propulsion energy storage systems, which in most cases will be batteries. The workshop is being convened on behalf of the U.S. Department of Energy (DOE) and the Idaho National Laboratory (INL).*

*Participants will work collaboratively through presentations, Q&A, and breakout discussions to identify the issues, determine where there are gaps, and make recommendations for additional standards and programs that may be needed. This input will inform a report to be prepared after the workshop.*

**Day One: April 5, 2011**

Time	Topic	
8:00 am	<b>Registration / Continental Breakfast</b>	
9:00 am – 9:15 am	<b>Welcome and Opening Remarks</b> The speaker will discuss the need for a public-private partnership to help drive the market for EDVs.	<b>Fran Schrotter</b> Senior Vice President and COO American National Standards Institute
9:15 am – 9:30 am	<b>Keynote Address</b> The speaker will highlight U.S. Department of Energy (DOE) programs related to electric drive vehicles.	<b>Patrick Davis</b> Program Manager, Vehicle Technologies Energy Efficiency and Renewable Energy U.S. Department of Energy
9:30 am – 9:35 am	<b>Introduction of Workshop Facilitator</b>	<b>Jim McCabe</b> Senior Director, Standards Facilitation American National Standards Institute

<p>9:35 am – 10:55 am</p>	<p><b>Panel: U.S.-Based Standards Activities (Part 1 - Infrastructure)</b></p> <p>Panelists in this two-part session will provide high-level overviews of the standards and codes landscape within the United States – what work is taking place and what remains to be done.</p> <p>With audience Q&amp;A. Topics will include:</p> <ul style="list-style-type: none"> <li>• DOE perspective on the standards and codes landscape for electric drive vehicles</li> <li>• IEEE P2030.1, <i>Guide for Electric-Sourced Transportation Infrastructure Working Group</i> and IEEE 1547, <i>Standard for Interconnecting Distributed Resources with Electric Power Systems</i></li> <li>• The Smart Grid Interoperability Panel Priority Action Plan 11 and V2G Domain Experts Working Group</li> <li>• Knitting together the codes and standards for the electric vehicle infrastructure – an industry perspective</li> </ul>	<p><b>Facilitator:</b></p> <p><b>Fred Hansen, Ph.D.</b> Program Manager Energetics</p> <p><b>Panelists:</b></p> <p><b>Lee Slezak</b> Manager, Vehicle Systems Vehicle Technologies Program U.S. Department of Energy</p> <p><b>Thomas S. Basso</b> Senior Engineer National Renewable Energy Laboratory</p> <p><b>Vishant Shah</b> Consultant EnerNex Corp.</p> <p><b>Alan Manche, P.E.</b> Director, Industry Standards Schneider Electric</p>
<p>10:55 am – 11:10 am</p>	<p><b>Networking Break</b></p>	
<p>11:10 am – 12:30 pm</p>	<p><b>Panel: U.S.-Based Standards Activities (Part 2 - Vehicle)</b></p> <p>With audience Q&amp;A. Topics will include:</p> <ul style="list-style-type: none"> <li>• SAE International standards work, including communication protocols and connectors, fast charge, batteries</li> <li>• UL standards activity including charging equipment; batteries</li> <li>• Report of SAE / NFPA electric vehicles safety standards summit including vehicle charging infrastructure; battery hazards identification and fire protection; training for emergency first responders and enforcement officials</li> <li>• Battery abuse fire testing within SAE J2464</li> </ul>	<p><b>Facilitator:</b></p> <p><b>Fred Hansen</b></p> <p><b>Panelists:</b></p> <p><b>Jack Pokrzywa</b> Director, Ground Vehicle Standards SAE International</p> <p><b>Kenneth Boyce, P.E.</b> PDE Manager – Energy Underwriters Laboratories, Inc.</p> <p><b>Christian Dubay, P.E.</b> Vice President and Chief Engineer National Fire Protection Association</p> <p><b>Rich Byczek</b> Site Manager Intertek</p>
<p>12:30 pm – 1:30 pm</p>	<p><b>Lunch</b></p>	

<p>1:30 pm – 3:00 pm</p>	<p><b>Panel: International Standards Landscape</b></p> <p>Panelists will provide high-level overviews of current and future standards development initiatives in the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC) including the IEC-e8 strategic roundtable on electric vehicles, and in the European and Asia-Pacific markets.</p> <p>With audience Q&amp;A. Topics will include:</p> <ul style="list-style-type: none"> <li>• IEC-e8 strategic roundtable on electric vehicles</li> <li>• The CEN-CENELEC Focus Group on European Electro Mobility</li> <li>• EDV standards activity in China and Japan</li> <li>• IEC/SC 23H on electrical connectors and IEC/TC 69 on charging equipment</li> <li>• TABD initiative on electric cars and smart grid</li> </ul>	<p><b>Facilitator:</b></p> <p><b>Frank Kitzantides</b> Past Vice President, IEC IEC Senior Technology Consultant</p> <p><b>Panelists:</b></p> <p><b>John Ketchell</b> Director , Innovation CEN / CENELEC Management Centre</p> <p><b>Keith Hardy</b> Senior Technical Advisor Argonne National Laboratory</p> <p><b>Gregory C. Nieminski, LLC</b> Chair, IEC/SC 23H</p> <p><b>Kathryn Hauser</b> U.S. Executive Director TransAtlantic Business Dialogue</p>
<p>3:00 pm – 3:15 pm</p>	<p><b>Networking Break</b></p>	
<p>3:15 pm – 4:40 pm</p>	<p><b>Panel: Code, Conformance, and Training Issues</b></p> <p>Panelists will provide high-level overviews of code, conformance, and training issues.</p> <p>With audience Q&amp;A. Topics will include:</p> <ul style="list-style-type: none"> <li>• National Electrical Code (NEC) installation issues</li> <li>• Potential NEC article 625 issues: listing and minimum enclosure rating requirements; electric vehicle supply equipment (EVSE) to building power connectivity for Level 2 and up; EVSE portability; branch protection and building wiring minimum sizing; EVSE charging cord topics; safety of chargers, plug-in connection, EVSE's personnel protection, and equipment</li> <li>• International Code Council (ICC) building, residential, fire and green construction codes; training of code officials</li> <li>• Advanced Electric Drive Vehicle Education Program</li> </ul>	<p><b>Facilitator:</b></p> <p><b>Fred Hansen</b></p> <p><b>Panelists:</b></p> <p><b>Mark Earley, P.E.</b> Chief Electrical Engineer National Fire Protection Association</p> <p><b>Andrew Kriegman</b> Vice President, Business Development Leviton Manufacturing Co. NEMA Electric Vehicle Supply Equipment Section</p> <p><b>Bruce E. Johnson</b> Director of Fire Service Activities International Code Council</p> <p><b>Al Ebron</b> Executive Director National Alternative Fuels Training Consortium</p>
<p>4:40 pm – 5:00 pm</p>	<p><b>Wrap-Up Day One / Day Two Preparation</b></p>	<p><b>Jim McCabe / Fred Hansen</b></p>
<p>5:00 pm – 6:00 pm</p>	<p><b>Networking Reception</b></p>	

**Day Two: April 6, 2011**

<b>Time</b>	<b>Topic</b>	
8:00 am	<b>Registration / Continental Breakfast</b>	
9:00 am – 9:15 am	<b>Overview of Day / Breakout Group Assignments (General Session)</b>	<b>Fred Hansen</b>
9:15 am – 10:45 am	<p><b>Concurrent Breakout Sessions</b></p> <p>Attendees will select one of three breakout groups to participate in:</p> <ul style="list-style-type: none"> <li>- Vehicle</li> <li>- Infrastructure</li> <li>- Support services / other</li> </ul> <p>Each group will discuss / answer focus questions on:</p> <ol style="list-style-type: none"> <li>1. What are the standards issues of concern for the identified stakeholders?</li> <li>2. What standards and codes, conformance programs, and/or education programs are needed to address the key standards issues?</li> <li>3. What are the most important take-aways or messages for DOE?</li> </ol> <p>To augment the discussions, worksheets will be provided online and at registration so that participants may also record their answers in writing. Participants should think about which breakout group they want to participate in and consider writing down some of their answers to the questions ahead of time.</p>	<p><b>Vehicle Group Facilitator:</b></p> <p><b>Ziga Ivanic, P.E.</b> Heavy Truck Team Leader Energetics</p> <p><b>Infrastructure Group Facilitator:</b></p> <p><b>Fred Wagner</b> Program Director Energetics</p> <p><b>Support Services / Other Group Facilitator:</b></p> <p><b>Fred Hansen</b></p>
10:45 am – 11:00 am	<b>Networking Break</b>	
11:00 am – 12:30 pm	<b>Concurrent Breakout Sessions (continued)</b>	
12:30 pm – 1:30 pm	<b>Lunch</b>	
1:30 pm – 3:00 pm	<b>Breakout Group Reports (General Session)</b>	<b>Fred Hansen et al.</b>
3:00 pm – 3:30 pm	<b>Next Steps and Closing Comments</b>	<b>Jim McCabe</b>