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Northwestern Engineering



Northwestern University Transportation Center

The Electrification of Transportation: A Look at the Road Ahead



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CCITT

Center for the Commercialization of
Innovative Transportation Technology

Wednesday, April 18, 2012

1:00-5:00 pm

James L. Allen Center, McCormick Foundation Auditorium
Northwestern University 2169 Campus Drive, Evanston, IL

About the Workshop

The Electrification of Transportation: A Look at the Road Ahead

With ever growing concerns regarding the diversification of our country's energy resources and the recent emergence of consumer and fleet electrical vehicles, this workshop will explore opportunities and challenges facing the implementation of electric vehicles, the current state of the electric vehicle (EV) market, factors impacting the user experience and user adoption, and transport electrification in the context of other energy choices.

Welcome and Introduction of Featured Speaker

Dr. Hani Mahmassani, William A. Patterson Distinguished Professor of Transportation and Director of the Northwestern University Transportation Center

Event Co-Chairs

Mr. Breton Johnson, Associate Director, Northwestern University Transportation Center

Ms. Bridget Calendo, Director of Operations and Outreach, Initiative for Sustainability and Energy at Northwestern

Program

Panel 1	1:00–2:15pm Infrastructure, Policy and Regulatory Considerations
Mr. Theodore Bohn	Senior Power Electronics Engineer, Center for Transportation Research, Argonne National Laboratory <i>Developing Codes and Standards in Support of Vehicle Electrification</i>
Ms. Kate Tomford	Chief Sustainability Policy Advisor, Illinois Energy Office, DCEO; Chair, Illinois EV Advisory Council <i>Publicly Funded Charging Stations—Considerations for State Policy Makers</i>
Mr. Bryan Wagner	Senior Environmental Planner, Illinois Tollway <i>The Role of a Transportation Agency in Supporting EV Infrastructure</i>
Mr. Dan Gabel	Manager, EV and Technology, Commonwealth Edison <i>Integration of Electric Vehicles with the Smart Grid</i>
Dr. Kimberly Gray	Professor of Civil and Environmental Engineering, McCormick School of Engineering and Applied Science, Northwestern University <i>Moderator</i>
Break	2:15–2:45pm
Panel 2	2:45–4:00pm EV User Demand, Impacts and Constraints
Dr. Jing Dong	Center for Transportation Analysis, Oak Ridge National Laboratory <i>Paths to One Million Plug-In EVs on U.S. Roads by 2015: Forecasts for Adoption</i>
Ms. Terry L. Komlos	Manager, Zero Emission Mobility, Corporate Planning, Nissan North America <i>Barriers to Adoption of Electrical Vehicles</i>
Mr. David Goodridge	Vice President, Sales and Infrastructure, 350Green <i>The Consumer Electrical Vehicle Charging Experience</i>
Ms. Sharon Feigon	Chief Executive Officer, iGo Car Sharing <i>Early Experiences of Electrical Vehicle Car Sharing Users</i>
Mr. Joshua Milberg	Regional Vice President, Midwest Operations, Willdan Energy Solutions <i>Moderator</i>
Featured Speaker	4:00–4:45pm “Why Electrify? A New Paradigm for Transportation’s Energy Transition”
Dr. David Greene	Corporate Fellow, Engineering Science and Technology Division, Oak Ridge National Laboratory

Speaker Bios

Theodore Bohn

Senior Power Electronics Engineer, Center for Transportation Research, Argonne National Laboratory

Theodore Bohn is the principle investigator on Plug-in Hybrid Electric Vehicle (PHEV) prototype vehicle development in the Vehicle Systems Group. The main focus of this effort has evolved into identifying and validating interoperability issues related to PEV charging systems which include in-vehicle traction battery subsystem benchmarking and validation. Recent research includes Smart Charging and standards related to adaptive charging controls tying the vehicle charging requests to power flow from the grid under various grid marketing and stability conditions. His group at ANL is leading wireless charging standards interoperability and safety research as part of SAE charging standards. Mr. Bohn has worked for each of the US based automobile manufacturers as well as various Tier I automotive suppliers. He has been working on advanced technology and alternative energy fueled vehicle research for over 25 years. He is the current Advanced Battery Technology Chair for SAE Congress. He actively serves on battery and PHEV related SAE technical standards committees. He is the chair of the SAE Electric Machine Rating Standards task force. Mr. Bohn received his BS and MS degree in electrical engineering at the University of Wisconsin-Madison. His area of specialization is design of electric machines, power electronics and dynamic control systems.

Jing Dong

Center for Transportation Analysis, Oak Ridge National Laboratory

Jing Dong received the B.S. degree in Automation and the M.S. degree in Systems Engineering from Tsinghua University in 2001, 2003, respectively, and the Ph.D. degree in Civil and Environmental Engineering from Northwestern University in 2008. From 2009 to 2010, she was a postdoctoral researcher at the Northwestern University Transportation Center. In 2010, she joined the Oak Ridge National Laboratory as a research staff. Her research interests include network modeling, transportation energy analysis, and intelligent transportation systems. Dr. Dong is a member of the Transportation Research Board (TRB) Committee on Traffic Flow Theory and Characteristics and the TRB Committee on User Information Systems.

Sharon Feigon

Chief Executive Officer, iGo Car Sharing

Since 2005, Sharon Feigon has been the CEO of I-GO Car Sharing, an affiliate organization of the Center for Neighborhood Technology. Previously, Sharon was CNT's Manager of Research and Development, specializing in finding innovative market-based solutions to the problems of urban sprawl. As CEO of I-GO, Sharon has tripled its size and brought in many new partnerships and resources. Sharon works in close cooperation with other car-sharing companies and programs throughout the United States and Canada. While at CNT, Sharon also served as the Principal Investigator for a three-year project with the Transportation Research Board, "Combating Global Warming Through Sustainable Surface Transportation Policy." Sharon is a member of the Congress for New Urbanism

and has served on the Evanston Plan Commission, chairing its Transportation Committee. She was recently a member of the Citizen Advisory Board for the PACE Bus System North Shore Study. She is currently a member of the U.S. Green Building Council's LEED-ND Committee, developing LEED standards for neighborhood developments. Sharon has an MBA from DePaul University and a BA in Economics from Antioch College.

Dan Gabel

Manager, EV and Technology, Commonwealth Edison

Dan Gable is the Manager of EV and Technology for ComEd. In this role, Dan is responsible for ComEd's initiatives related to ComEd and consumer adoption of electric vehicles, including managing the impacts to the electric grid, and helping to ready the market for EVs in ComEd's service area. Dan is also responsible for managing ComEd's research and development program memberships, as well as managing smart grid integration activities such as interaction of the grid with EVs, distributed generation, energy storage, and other customer devices. Dan has 21 years with Exelon, including previous roles in metering, engineering, and project management. Most recently, Dan was ComEd's Fleet Services manager, where he was responsible for ComEd's fleet of 4,000 vehicles and equipment, including development and implementation of the Green Fleet strategy, aimed at reducing vehicle emissions to support Exelon's 2020 initiative. Dan holds a Bachelor's degree in electrical engineering from the Illinois Institute of Technology, and a Master's degree in project management from Keller Graduate School. He is an Illinois Licensed Professional Engineer.

David Goodridge

Vice President, Sales and Infrastructure, 350Green

David Goodridge is 350Green's Vice President of Sales and Infrastructure. He is responsible for developing 350Green's network of public charging stations across the country. Based in Nashville, David brings over 15 years of marketing and leadership experience in both the public and private sector. Mr. Goodridge graduated from Vanderbilt University's Owen Graduate School of Management and has a bachelor's degree from Cornell University.

Kimberly Gray

Professor of Civil and Environmental Engineering, McCormick School of Engineering and Applied Science, Northwestern University

Kimberly Gray joined the Department of Civil and Environmental Engineering at Northwestern University in 1995. After receiving her Ph.D. from the Johns Hopkins University she worked as a research engineer for the Lyonnaise des Eaux in Paris, France for 2 years. Her areas of expertise are environmental catalysis and physicochemical processes in natural and engineered environmental systems with particular focus on energy and sustainability applications. She studies the synthesis, characterization and performance of photo-active nanomaterials for application in renewable energy (CO₂ reduction, water splitting), water recycling (reactive membranes for chemical oxidation and disinfection) and air quality control (cabin air, building air handling). She is particularly interested in the design and operation of sustainable cities and in solving problems of water scarcity and gender equity in developing countries such as India. Gray was a recipient of the

NSF Presidential Young Investigator Award. She was the Associate Director of the NSF Environmental Molecular Science Institute for Environmental Catalysis at NU from 1998-2005 and was the Director of the Environmental Science, Engineering and Policy Program from 2003-2010. She directed the Northwestern Institute for Sustainable Practices. In 2007 she received the McCormick Excellence Award in Research, Teaching and Citizenship. She was selected as the 2008-2010 Sigma Xi Distinguished Lecturer for her work in the areas of sustainability, energy and ecological restoration. Gray was chosen one of the 2008 Aldo Leopold Leadership Fellows by the Woods Institute for the Environment at Stanford University. She is the author of over 100 scientific papers and lectures widely on energy and environmental issues.

David Greene

Corporate Fellow, Engineering Science and Technology Division,
Oak Ridge National Laboratory

David L. Greene is a Corporate Fellow of Oak Ridge National Laboratory where he has researched transportation energy policy issues for the U.S. government for more than 30 years. He is also a Senior Fellow of the Howard H. Baker, Jr. Center for Public Policy and a Research Professor of Economics at the University of Tennessee. Greene is an author of more than 200 publications on transportation, energy and related issues, including over 100 refereed journal articles or National Research Council reports. He is an emeritus member of both the Energy and Alternative Fuels Committees of the Transportation Research Board and a lifetime National Associate of the National Academies. He is currently a member of the National Research Council's Committee on Transitions to Alternative Vehicles and Fuels. He is a recipient of the TRB's Pyke Johnson Award, the Society of Automotive Engineers' 2004 Barry D. McNutt Award for Excellence in Automotive Policy Analysis, the Department of Energy's 2007 Hydrogen R&D Award and 2011 Vehicle Technologies R&D Award, the International Association for Energy Economics' Award for Outstanding Paper of 1999 for his research on the rebound effect, the Association of American Geographers' 2011 Edward L. Ullman Award, and was recognized by the Intergovernmental Panel on Climate Change for contributions to the IPCC's receipt of the 2007 Nobel Peace Prize. He holds a B.A. from Columbia University, an M.A. from the University of Oregon, and a Ph.D. in Geography and Environmental Engineering from The Johns Hopkins University.

Terry L. Komlos

Manager, Zero Emission Mobility, Corporate Planning, Nissan North America

Terry L. Komlos is Manager, Zero Emission Mobility, Corporate Planning for Nissan North America, Inc. In this role she has responsibility for EV market readiness activities including the development of public infrastructure in support of the Nissan LEAF. Ms. Komlos joined Nissan in 2002 and has worked in various roles within Purchasing Administration and Finance. Prior to joining Nissan, she held various management positions in Finance & Administration and Financial Systems with Bankers Trust and the Medical University of South Carolina. Ms. Komlos holds a B.S. in business administration and an M.B.A. from Charleston Southern University.

Joshua Milberg

Regional Vice President, Midwest Operations, Willdan Energy Solutions

Josh Milberg serves as the Regional Vice President responsible for Midwest Operations for Willdan Energy Solutions. In this role, he is responsible for building the energy efficiency and smart grid practice in the Midwest, and also providing strategic counsel to select clients. From 2009 - 2011, Josh served as the 1st Deputy Commissioner of the Department of Environment for the City of Chicago. As 1st Deputy Commissioner, he was responsible for the day-to-day operations of the department and led the City's regulatory policy for Chicago utilities, as well as energy efficiency and smart grid strategy. Prior to joining the Department of Environment, Josh worked in strategy consulting with Booz and Company (Katzenbach Partners). In this role, he led the development of the City of Chicago's building energy efficiency retrofit strategy that was used as the basis to win a \$25 million competitive grant award for the Chicago region. Josh was appointed to serve on the Illinois Electric Vehicle Advisory Council by Governor Pat Quinn. Josh graduated from Claremont McKenna College (cum laude) and received his Masters in Business Administration with concentrations in Strategy and Finance from the Yale School of Management.

Kate Tomford

Chair, Electric Vehicle Advisory Council

Kate Tomford serves as Chief Sustainability Policy Advisor for the Illinois Energy Office within the Illinois Department of Commerce & Economic Opportunity (DCEO). She develops and administers policies and programs in energy efficiency, renewable energy, and green technology, and represents the State of Illinois and DCEO on numerous sustainability-related councils and task forces. Since the fall of 2011, she has served as the state's Electric Vehicle Coordinator and chair of the Illinois Electric Vehicle Advisory Council. Prior to joining DCEO, Kate worked on energy and environmental policy in Governor Pat Quinn's Office, former Lt. Governor Pat Quinn's Office, and the Mayor's Office at the City of Chicago. Kate holds a master's degree in environmental science and policy from the University of Chicago.

Bryan Wagner

Senior Environmental Planner, Illinois Tollway

Bryan began his career with the Illinois Tollway in 2007 as an Environmental Planner. During his tenure, he has risen to the head of the Environmental Unit while working to secure environmental permits for all Tollway construction projects in addition to assisting on and managing environmental initiatives such as Threatened and Endangered species and wetland mitigation projects along with the design and construction of the nation's largest known bioswale system along the North Tri-State Tollway. Additionally, during his time with the Tollway, he has had the privilege to manage and coordinate various energy efficiency and alternative energy studies and applications. Prior to his work at the Tollway, he was a high school World Geography teacher in south Texas. Bryan received his B.S. from Texas State University in Geography with an emphasis on Water Resources Policy.



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