

*Energy and Transportation Convergence:
Challenges and Opportunities for Electric Grid Modernization*

Center for Business and Regulation
University of Illinois Springfield

*Chicago, Illinois
November 13, 2009*

Sponsored in part by:

ITC Holdings Corporation

Edward Hurley and Chico & Nunes, P.C

Agenda

November 13, 2009

- 8:00 am** **Registration**
- 8: 45am** **Welcome**
Karl McDermott, Acting Director
Center for Business and Regulation
- 8:50 am** **Introduction of Keynote Speaker**
Hon. Sherman Elliott, Commissioner
Illinois Commerce Commission
- 9:00am** **Keynote Address**
Mark Duvall, Director, Electric Transportation
Electric Power Research Institute
- 9:45am** *Anne Pramaggiore, President*
Commonwealth Edison Company
- 10 am** **Morning Break**
Sponsored by :
ITC Holdings Corporation
- 10:15am** **Session 1: Vehicle to Grid:
Obstacles and Opportunities**
Moderator:
Hon. Monica Martinez, Commissioner
Michigan Public Service Commission
- Panelists:*
*Britta Gross, Director, Global Energy Systems
and Infrastructure Commercialization*
General Motors
- Dan Gabel, Manager of Fleet*
Commonwealth Edison Company
- Luke Tonachel, Vehicles Analyst*
Natural Resources Defense Council
- 11:45 am** **MAGICC Demonstration**
Scott Baker and Jon Lilley
Center for Carbon-free Power Integration- U. of Delaware

Noon

Lunch

Luncheon Speaker

Hon. Marc Spitzer, Commissioner
Federal Energy Regulatory Commission

1 pm

Session 2: Grid Architecture and V2G

Moderator:

Hon. Paul Centolella, Commissioner
Public Utilities Commission of Ohio

Panelists:

Ken Huber, Manager—Advanced Technology
PJM Interconnection Inc.

Rich Kalisch,
Midwest ISO

*Larry Alford, Strategic Planning and
Enterprise Development*
Austin Energy

2:15pm

Session 3: Pricing and Policy for V2G

Moderator:

Robert Lieberman, Principal
Regulatory Assistance Project

Panelists:

Ron McNamara, Managing Director
Economic Consultant

Chris Thomas, Policy Director
Illinois Citizens Utility Board

*Allen Freifeld, Senior Vice-President of
External Affairs*
Viridity Energy

3:30 pm

Afternoon Break

Sponsored by :

Edward Hurley and Chico & Nunes, P.C.

3:45 pm

**Session 4: Regulator Roundtable,
Summary, and Next Steps**

Moderator:

Karl McDermott, Acting Director
Center for Business and Regulation

Panelists:

Hon. David Boyd, Chair
Minnesota Public Utilities Commission

Hon. Robert Clayton, Chair
Missouri Public Service Commission

Hon. Paul Centolella, Commissioner
Public Utilities Commission of Ohio

Hon. Monica Martinez, Commissioner
Michigan Public Service Commission

Participants

David Boyd: David Boyd holds a B.A. degree with majors in biology and chemistry from St. Olaf College, and a Ph.D. degree in chemistry from the University of Minnesota. Dr. Boyd performed two years of post-doctoral research at the University of Minnesota before joining the faculty at the University of St. Thomas in 1989 as an Assistant Professor. He has taught chemistry classes at all levels of the undergraduate curriculum, and was promoted from Assistant Professor to Associate Professor in 1994, and from Associate Professor to Professor in 2003. Dr. Boyd served as the Department Chair of the Chemistry Department from 2001 until his appointment to the PUC in the summer of 2007. Dr. Boyd has over 25 years of research experience in inorganic and materials chemistry, including significant basic inquiries in solar energy conversion (catalytic water splitting and photovoltaic devices). Other areas of inquiry include sensor development, and the synthesis of useful conducting and semiconducting thin films. Dr. Boyd currently serves as a member of the National Association of Regulatory Utility Commissioners (NARUC) Committee on Electricity, Subcommittee on Clean Coal and Carbon Sequestration and the Subcommittee on Nuclear Issues-Waste Disposal. He also serves as an Executive Committee Member on the Nuclear Waste Strategy Coalition. Dr. Boyd was appointed to the Minnesota Public Utilities Commission by Governor Tim Pawlenty on July 10, 2007 and was appointed Chair on July 11, 2008. He was reappointed on December 18, 2008. His current term expires January 5, 2015.

Mark Duvall: Mark Duvall is the Director of Electric Transportation at the Electric Power Research Institute (EPRI), an independent, non-profit center for public interest energy and environmental collaborative research. He is responsible for EPRI's research and development program for electric transportation, including electric, plug-in hybrid, and fuel cell vehicle programs and related advanced infrastructure. He oversees a number of partnerships and collaborations between EPRI and electric utilities, automotive companies, local, state, and federal agencies, national laboratories, and academic research institutions. Mark's work is currently focused on: (1) plug-in hybrid electric vehicle research, development, and demonstrations in collaboration with major automotive manufacturers like the EPRI-DaimlerChrysler PHEV Sprinter Van Program; (2) advanced battery system development and testing; (3) electric charging infrastructure; and (4) environmental analysis of the air quality and greenhouse gas emissions characteristics of plug-in hybrids and other electric transportation technologies. Prior to joining EPRI, Mark held the position of Principal Development Engineer at the Hybrid Electric Vehicle Center of the University of California, Davis. He has worked in the field of advanced transportation since 1990 and has led the development of several prototype advanced vehicles. He holds B.S and M.S degrees in Mechanical Engineering from the University of California, Davis and a Ph.D. in Mechanical Engineering from Purdue University. Areas of Expertise: Electric Transportation, Plug-In Hybrid Electric Vehicles, Advanced Batteries, Energy Efficiency, Mobile Emissions, Truck Stop Electrification

Sherman Elliott was appointed to the Illinois Commerce Commission (ICC) effective January 1, 2008. Elliott's term expires January 2012. Commissioner Elliott serves on the Energy Resources

and Environment Committee of the National Association of Regulatory Utility Commissioners (NARUC) and on the Federal Energy Regulatory Commission (FERC)/NARUC Smart Grid Collaborative. The Collaborative, developed in early 2008, provides an important forum for discussing technological and policy issues to facilitate the transition to a smart electric grid. Commissioner Elliott also serves as a member of the National Institute of Standards and Technology (NIST) Energy Infrastructure and Security Act (EISA) Business and Policy Domain Expert Working Group on the Smart Grid; as an Advisory Board member for the Financial Research Institute (FRI) and; as a member of the Solar Electric Power Association (SEPA) Advisory Council for the Central Region. Elliott, of Springfield, served as manager of State Regulatory Affairs for the Midwest Independent Transmission System Operator (MISO) since 2004. In that role he was responsible for monitoring state and federal regulatory filings as well as working with legislative, utility, regulatory and other stakeholder communities for those states in which MISO provides service. Prior to joining MISO, he was employed as a senior energy policy advisor to Commissioners on state and federal issues for eight years. From 1992-1996 he served as a senior economist in the rates section of the ICC's Public Utilities Division where he developed and provided testimony on issues ranging from embedded cost of service rate design and rate planning matters in electric and natural gas cases. He received both a bachelor's and master's degrees in economics from the University of Illinois at Springfield. Commissioner Elliott is married and has two adult daughters.

Allen Freifeld: Allen Freifeld joined Viridity as Senior Vice President, External Affairs in June 2009, after twenty five years of regulatory and industry experience, including five years as a member of the Maryland Public Service Commission from 2004 through 2009. During his tenure on the Commission Mr. Freifeld led the effort to enhance the participation of energy efficiency and distributed resources in regional markets. He served as Chairman of the Steering Committee of the Mid Atlantic Distributed Resources Initiative and was also a founder of the Organization of PJM States, Inc., a group of fourteen State Public Utility Commissions working toward regional solutions for electric grid issues. Prior to his appointment to the Commission Mr. Freifeld served on the Staff of the Commission for over twenty years both as a Hearing Examiner and as Chief Staff Counsel. Mr. Freifeld also served as chief regulatory counsel for MCI Telecommunications in the mid-Atlantic region during the period following enactment of the Telecommunications Act of 1996. Mr. Freifeld is a graduate of SUNY Binghamton, with a degree in Economics, and the University Of Maryland School Of Law.

Dan Gabel is the manger of fleet for Commonwealth Edison Company.

Britta Gross is Director, Global Energy Systems and Infrastructure Commercialization within GM R&D and Strategic Planning. In this role she is responsible for assessing energy system alternatives and steering the commercialization efforts for new infrastructures required to support GM's biofuel, battery-electric and hydrogen fuel cell electric vehicle programs. Britta has an extensive and diverse background in Automotive and Aerospace industries. She received a degree in Electrical Engineering from Louisiana State University in Baton Rouge, Louisiana and studied language arts at the University of Wurzburg in Germany. She serves on the Board of Directors of the National Hydrogen Association.

Robert Lieberman is a Principal at the Regulatory Assistance Project. Bob joined RAP after serving as a Commissioner with the Illinois Commerce Commission and before that as the Chief Executive Officer of the innovative Chicago-based urban sustainability group, the Center for Neighborhood Technology. Bob has 25 years of experience as a designer, implementer, and regulator of innovative demand-side energy efficiency and demand response programs. While serving as Commissioner, Bob organized and presided over the design and implementation collaborative for the Illinois Sustainable Energy Plan that evolved into Illinois' first energy efficiency and renewable energy portfolio standards. He drafted the Commission's orders that created the Illinois Statewide Smart Grid Collaborative and the Commonwealth Edison AMI pilot. He organized and served as Chairman of the Midwest Demand Resources Initiative, a collaborative effort of 14 Midwest state regulatory commissions, and other stakeholders designed to help integrate energy efficiency, demand response, and price-responsive demand into wholesale electricity markets. Prior to his appointment as a Commissioner, Bob served as CEO at the Chicago-based Center for Neighborhood Technology where he was responsible for the development of the Community Energy Cooperative which designed and implemented energy efficiency and demand response programs for communities in northern Illinois. Among many other offerings, the Cooperative introduced and implemented the Energy-Smart Pricing Program, the first hourly pricing program for residential customers in the country. The program now expanded throughout Illinois - has over 20,000 participants who have saved between 10% -20% on their electricity bills and reduced their demand between 15% - 25%. Bob received a Bachelor of Arts in Russian History from Oakland University and a Masters of Public Policy from the Institute of Public Policy Studies at the University of Michigan.

Monica Martinez: Monica Martinez was appointed by Governor Jennifer M. Granholm to the Michigan Public Service Commission on July 3, 2005. Her appointed term expires July 2, 2011. Since joining the Commission, Commissioner Martinez has taken an active role in promoting energy efficiency and renewable energy development in the state. She has led new Commission consumer education and awareness efforts promoting lifeline participation, summer energy conservation, and low-income and senior citizen energy assistance. Commissioner Martinez has been actively involved in shaping Michigan's future energy policy, playing a key role in the state RPS laws regarding energy policy. Governor Granholm appointed her to the Climate Action Council, where she oversaw policy direction related to carbon solutions, new generation options and transmission development. Recognized for her national leadership, Commissioner Martinez is the immediate past President of the Mid America Regulatory Conference and serves on various panels and task forces focusing on economic development, regional markets, at-risk customers, and services for the hearing impaired. She also is a member of the Organization of MISO States Board of Directors. Ms. Martinez earned a Bachelors in Economics and Political Science and a Masters in Business Administration, with *distinction*, from the University of Michigan.

Karl McDermott is the Ameren Distinguished Professor of Business and Government at the University of Illinois Springfield. He received a B.A. in Economics from the Indiana University of Pennsylvania, an M.A. in Economics from the University of Wyoming, and A Ph.D. in Economics from the University of Illinois Urbana-Champaign. Dr. McDermott has served as a commissioner

at the Illinois Commerce Commission from 1992-98, as Vice President of the National Economic Research Associates from 1999-2008, and President and Co-Founder of the Center for Regulatory Studies from 1985-92. His primary field of interest is public utility regulation. Other research interests include antitrust economics, monetary economics, environmental economics and economic history.

Ron McNamara is a consulting economist and formerly the chief economist for the Midwest ISO. Dr. McNamara has also held positions with Saracen Energy and Bear Stearns. He earned his PhD in Economics from the University of California, Davis and has degrees from the University of Rhode Island and the University of California, Irvin.

Anne Pramaggiore is the President and COO of Commonwealth Edison Company where she is responsible for overseeing the day-to-day operations of the company, which delivers electric service to customers throughout northern Illinois. ComEd delivers electricity to approximately 3.8 million residential and business customers across northern Illinois, or 70 percent of the state's population. Trained as a lawyer, Pramaggiore joined ComEd's legal team in 1998, recognizing the opportunity to make an impact in what was essentially the last regulated industry to undergo restructuring. She then received a promotion into ComEd's regulatory area, where she ultimately became responsible for directing the company's successful transition into an open and competitive electricity market. In 2007, after months of debate and negotiation, Pramaggiore helped strike an accord that provided Illinois residents with \$1 billion in rate relief, while preserving the state's competitive electricity market and protecting ComEd from a potential bankruptcy. Prior to her current position, Pramaggiore served as executive vice president of Customer Operations, Regulatory, and External Affairs. In that role, Pramaggiore oversaw distribution and transmission rate making, customer operations, and state regulatory affairs and strategy for ComEd. Additional responsibilities included administration of environmental stewardship activities designed to promote customer satisfaction. She is a 1989 graduate of DePaul University School of Law and served as editor-in-chief of the school's Law Review. She has a bachelor's degree in Communications and Theater from Miami University, Oxford, Ohio.

Marc Spitzer: Marc Spitzer was nominated by President George W. Bush to the Federal Energy Regulatory Commission and confirmed by the U.S. Senate for a term expiring June 30, 2011. Commissioner Spitzer believes the FERC's primary missions are to ensure that America's ratepayers have safe, economic, and reliable supplies of electricity and natural gas; and transparent, robust and competitive wholesale energy markets. Commissioner Spitzer believes that successful regulation of FERC-jurisdictional industries requires a balancing of all competing interests to ensure just and reasonable rates. As Chairman of the Arizona Corporation Commission (ACC), he focused on policies encouraging expansion of natural gas infrastructure, specifically distribution and storage; creating a demand side management policy; enhancing the ACC's renewables standard; and advancing consumer privacy concerns in telecommunications. As Chairman, he established a legacy of balancing competing interests, while ensuring Arizonans received safe, economical and reliable utility services. The expansion of and improvements to the bulk transmission system and the nation's natural

gas pipeline system are high priorities for Commissioner Spitzer. He also believes those enhancements are essential to the dispatch of environmentally friendly resources as well as ensuring reliability and efficiency. Commissioner Spitzer also believes that the expanded enforcement authority provided by EAct 2005 will help deter market manipulation and other anticompetitive behavior and will enhance FERC's ability to appropriately penalize those who are culpable. Commissioner Spitzer was elected in 2000 to the ACC and in 2002 was elected Chairman by his colleagues. He received recognition for his leadership of the Arizona Commission from 2003-2005. At the FERC, Commissioner Spitzer is building on his record in Arizona on environmental issues. Demand response, energy efficiency, and access to the grid by alternative resources were major focuses of Commissioner Spitzer in retail rate cases and policy decisions before the Arizona Commission. Commissioner Spitzer believes that EAct 2005 supports his commitment to those issues, which are germane to both Federal and State regulators. In 1992, after many associations with civic, philanthropic and political causes, he was elected to the Arizona State Senate for District 18. Commissioner Spitzer served in the Legislature as Chair of the Judiciary and Finance Committees and was elected by his peers to the position of Senate Majority Leader in 1996. As an attorney since 1982, Commissioner Spitzer represented taxpayers in proceedings involving the Internal Revenue Service. He was first certified as a Specialist in tax law by the Arizona Bar in 1987. Commissioner Spitzer was born in Pittsburgh, Pennsylvania and grew up in Philadelphia. After graduation from Dickinson College in Carlisle, Pennsylvania, he attended the University of Michigan, School of Law. Commissioner Spitzer considers his greatest accomplishments political or otherwise, his marriage to the former Jacqueline Raub of Phoenix and his son, Bennett Alexander.

Chris Thomas is the Policy Director for the Citizens Utility Board, which has been referred to by the St. Louis Post Dispatch as the "Gold Standard" for consumer groups nationwide. With an advanced degree in economics and finance, he has testified as an expert on numerous natural gas, electricity, and telecommunications issues. Chris has helped to shape CUB's role as an active advocate for programs and tariffs that bring real benefits to customers, and he has been supportive of efforts to investigate the achievable potential savings available through a smarter grid.

Luke Tonachel: Luke Tonachel is a clean vehicles analyst with the Natural Resources Defense Council's climate and energy team. His work focuses on reducing global warming pollution and U.S. oil dependence through policies that promote advanced vehicle technologies and cleaner, more sustainable fuels. He coauthored NRDC's report "Securing America: Solving Our Oil Dependence through Innovation" and was a principal investigator for the joint EPRI-NRDC report "Environmental Assessment of Plug-in Hybrid Electric Vehicles." Prior to joining NRDC, Luke directed product development at a San Francisco software company and served as a nuclear engineering officer in the Navy. He holds a master's in public policy from the University of California at Berkeley and a bachelor's degree in mechanical engineering from the University of Rochester.