

THE SMART GRID: FROM CONCEPT TO REALITY

A Conference for
Utilities, Consumers, and Technology Providers



June 10th, 2010

The Winnipeg Convention Centre
Winnipeg, Manitoba, Canada

Sponsored and Supported by

University of Manitoba, IEEE - PES Winnipeg Chapter



Conference Overview

The electric power grid as it is configured today is set to witness large scale transformations driven by the need to be more efficient, green and cost effective. The successful evolution to a smarter, greener and more efficient grid depends on how well several challenges are met.

This conference will address the immediate and long-term challenges and opportunities for utilities, technology providers and the consumer in transitioning to a smarter grid. It will discuss the technologies enabling this change and the learning from pilot smart grid programs.

The goal is to provide participants a clear vision of what the grid of the future could look like, the benefits to all stakeholders and the road map for moving towards this smart grid.

To facilitate the sharing of ideas, this conference has been designed around three panel discussions. The panel discussions will feature presentations followed by a free flowing discussion of the topic.

- **Panel 1 - "Integrating Smart Grid Technologies into Transmission Networks"**

This panel will discuss how instrumentation and intelligence can be added to the existing bulk power transmission infrastructure to optimize power flows and make the system more flexible, resilient and efficient. It will also address the challenges of integrating the abundant renewable energy resources of this region to the grid.

- **Panel 2 - "Smart Grid and the Consumer"**

The focus of discussions will be on how the Smart Grid will be able to increase consumer choice and respond efficiently to these choices benefitting both utilities and the consumer. The Smart home and the benefits of Plug in Hybrid Vehicles would also be discussed.

- **Panel 3 - "Smart Grid and Stakeholders Benefits"**

While the benefits of a smart grid are driving change, upfront investments will add costs. This discussion centers on what these costs and benefits could be for the various stakeholders.

A two-way flow of information across the grid will form the backbone of a Smart Grid. The conference will feature two presentations on IT and communications for the smart grid.

Welcome...

On behalf of our conference steering committee, welcome to the Winnipeg Convention Center and to Manitoba's first conference on the Smart Grid. This conference is a platform to share and explore ideas and perspectives on the significant changes the smart grid will bring to the industry.

- Learn from executives involved in pilot smart grid programs
- Stay on the cutting edge of technologies enabling the Smart Grid
- Take away a roadmap of near and long term changes

Thank you for your participation.

Yours sincerely,

Conference Steering Committee:

Athula Rajapakse, University of Manitoba
Ramswami Bharath, ERLPhase Power Technologies
Dave Fedirchuk, ERLPhase Power Technologies
Kimberly Laing, Manitoba HVDC Research Center
Kurt Simonsen, Province of Manitoba
Paul Wilson, Manitoba HVDC Research Center
Tony Weekes, Manitoba Hydro
Tom Molinski, Manitoba Hydro
Vajira Pathirana, Teshmont Consultants

Agenda

7.30a.m to 8.25a.m **Registration**

8.25a.m to 8.30a.m **Welcome**
Amber Skrabek, University of Manitoba

8.30a.m to 8.45a.m **Inaugural Address**
Hon. Rosann Wowchuk, Minister of Finance, Deputy Premier
Province of Manitoba

8.45a.m to 9.05a.m **Keynote address**
Gary Rackliffe, Vice President Smart Grids North America,
ABB Inc

9.05a.m to 9.50a.m **Smart Grid Overview**

This session will give an overview of smart grid applications and their impact, and challenges of deploying smart grid technologies. It will set the tone for further discussions on how utilities, technology providers and consumers should prepare for the grid of the future. The views of two key organizations, the ISO's and NASPI, on how they see future developments in managing power flows and transmission will be presented.

Speakers:

Michael Irvin Smart Grid Technical Solutions Director GE Digital Energy

- *Smart Grid End-to-End Value Proposition*

Richard Kalisch, Senior Director, Technology Initiatives, Midwest ISO

- *The MISO view of Smart Grid challenges*

Tony Weekes, System Performance, Manitoba Hydro

- *NASPI – Looking at the future*

9.50a.m to 10.15a.m **Coffee Break**

10.15a.m to 12.00p.m **Panel #1 – “Integrating Smart Grid Technologies into Transmission Networks”**

Chairman: Grant Gilchrist, Principal Consultant Smart Grid Engineering, EnerNex

This panel will discuss how instrumentation and intelligence can be added to the existing bulk power transmission infrastructure to optimize power flows and make the system more flexible, resilient and efficient. The panel will also discuss the challenges of integrating the abundant renewable energy resources of this region and how the smart grid can improve load factors and achieve better utilization of generation capacity.

Speakers and Panelists:

Krish Narendra, GM, Technology and Quality, ERLPhase Power Technologies

- *Synchrophasors in Wide Area Monitoring Systems (WAMS)*

David Beauvais, Smart Grid Project Leader, CanmetENERGY, Natural Resources Canada

- *Integrating Renewables*

Detlef Lange, CTO, Avantis Group, Germany

- *Tapping Wind Power, the European experience*

John Setala, Managing Principal, United Services Group, Great River Energy

- *Substation Digitization*

Todd Pistorese, Global Business Development Manager, Power Industry, OSIsoft Canada

- *Real-time, end to end intelligence for the smart grid*

12.00p.m to 1.00p.m **Lunch**

1.00p.m to 2.15p.m **Panel #2 – “Smart Grid and the Consumer”**
Chairman: Bill Pratt, Smart Grid Customer Program Director, National Grid

This session will explore how the Smart Grid will be able to increase consumer choice and respond efficiently to these choices. Presentations will include, pilot project deployments of smart meters and AMI and the effectiveness of time of use pricing and demand response in reducing peak load factors based on these projects. Distributed generation, the two-way flow of energy between the utility and the consumer enabled by plug-in electric vehicles and the smart home of the future will also be discussed.

Speakers and Panelists:

Ralph Zucker, Director, Smart Grid Development, BC Hydro

- *BC Hydro's Smart Grid initiatives*

Dale Pennington, Managing Director, Utiliworks Consulting

- *Building an AMI for the Smart Grid,*

John–Paul Farag, Consultant, Advanced Technology & Powertrain, Toyota Canada

- *PHEV's and the Grid*

Andrew Roehr, Vice President, Smart Energy Services, Capgemini

- *The Smart Home*

2.45p.m to 3.10p.m **Coffee Break**

3.10p.m to 3.50p.m **“Integrating the Grid – The Role of Communications and IT”**

The smartness of the grid comes from a two way flow of timely information and energy and the communications enabling this flow. Digital intelligence is the key. The technologies, protocols and shape of IT and communications are perhaps one of the biggest areas of change this industry will witness. This session will give a broad view of these changes.

Speakers:

Bradley Williams, Vice President, Oracle Utilities Global Business Unit

Scott Fawcett, Director, Energy Industry and Smart Grid, Cisco Canada

3.50p.m to 4.40p.m **Panel #3 – “Smart Grid and Stakeholder Benefits”**
Chairman: Dave Fedirchuk, ERLPhase Power Technologies

Any major change needs strong driving forces. Which stakeholder group drives the smart grid will depend on the benefits to the various stakeholders. This panel will discuss questions such as:
How are the costs and benefits of smart grid deployment going to pan out to providers and consumers?
What kind of incentives and consumer education will be needed to change consumption habits?
What are the political and regulatory policies necessary to facilitate this change?

Panelists:

Andrew Roehr, Vice President, Smart Energy Services, Capgemini

Kurt Simonsen, Ministry of Innovation, Energy and Mines, Province of Manitoba

Ralph Zucker, Director, Smart Grid Development, BC Hydro

Tom Molinski, Emerging Energy Systems, Power Planning, Manitoba Hydro

4.40p.m to 4.55p.m **ESAM Presentation**
Ralph Kurth, Director ESAM and President, Teshmont Consultants LP

4.55p.m to 5.00p.m **Vote of Thanks**
Prof Udaya Annakkage

5.00p.m to 6.00p.m **Cash Bar**

6.00p.m onwards **Dinner with Guest Speaker Pierre Guimond, President and CEO, CEA**

Speaker Biographies

(in order of agenda participation)

Gary Rackliffe, Vice President Smart Grids North America ABB Inc.

Gary Rackliffe was appointed to Vice President of Smart Grids North America in May 2009. He leads ABB's Smart Grid initiative in North America, including business development, strategic partnerships, and marketing and product strategies.

Rackliffe has over 25 years of industry experience in both transmission and distribution and has worked for ABB for 17 years. He was previously the Vice President of Marketing and Sales for the Northeast and Mid-Atlantic sales region, and Vice President of Strategic Marketing for the Power Products and Power Systems divisions of ABB. He has also managed Marketing, Sales, and Business Development for ABB's Network Management business, directed ABB's Flexible AC Transmission Systems (FACTS) for the U.S., and developed systems business for all ABB utility products and services.

Rackliffe holds BS and ME degrees in Electric Power Engineering from Rensselaer Polytechnic Institute and an MBA degree from Carnegie Mellon University.

Rackliffe is a Senior Member of IEEE, a member of the GridWise Smart Grid Implementation Committee, a member of the DistribuTECH advisory committee, and is a Registered Professional Engineer in the Commonwealth of Pennsylvania.

He is the co-author of a book on T&D planning, and has published several technical papers.

Michael Irvin, Smart Grid Technical Solutions Director GE Digital Energy

Michael Irvin is a Smart Grid Technical Solutions Director with GE Digital Energy. In this role he works with utility customers to understand their technical and business requirements and supports the development of their Smart Grid initiatives including selection of the optimal technical architecture, deployment roadmap, and the associated business case value proposition.

He has more than 20 years of technical and business experience in the electrical utility industry including leadership positions in engineering, consulting, project management, and commercial sales for global hydro-generation, substation, transmission and distribution projects.

Michael has an MBA from the University of Notre Dame and B.S. Electrical Engineering from the Colorado School of Mines.

Richard Kalisch, Senior Director, Technology Initiatives Midwest ISO

Richard Kalisch is a Senior Director of Technology Initiatives at Midwest ISO (MISO) where he is responsible for the coordination of smart grid activities. MISO is a non-profit regional transmission operator over a 13 state area of the U.S. plus the Canadian province of Manitoba. This involves ensuring the reliable operations of nearly 94,000 miles of interconnected high voltage power lines that support transmission of more than 100,000 MW of energy, by administering one of the world's largest wholesale energy markets.

Rich has over thirty years of electric power industry experience in information technology management and senior consulting roles. He has held senior management IT positions covering a wide breath of electric utility functions including EMS, wholesale markets, T&D operations, generation operations, CIS, metering, GIS as well as back office finance and human resource functions. Rich has also held senior consulting roles in major consulting firms involved in IT strategic planning and project management.

Tony Weekes, System Performance Manitoba Hydro

Tony Weekes received his B.Sc. and M.Sc. degrees in electrical engineering from the University of Manitoba. His professional career included positions in HVdc Design, AC System Network Studies, and HVdc System Studies with Manitoba Hydro. Currently, he is in a senior position as Principal HVdc System Support Engineer for the System Performance Department of Manitoba Hydro.

For the past 5 years Tony has also been the corporate representative for the North American SynchroPhasor Initiative (NASPI) which has the goal of providing improved security of the power system through the use of wide area monitoring.

He is a registered engineer in the province of Manitoba, for the past 23 years.

Grant Gilchrist, Principal Consultant Smart Grid Engineering EnerNex

Grant Gilchrist, P. Eng., is a Principal Consultant on the Smart Grid Engineering Team at EnerNex Corporation. He is a member of several utility data communications standards bodies including the IEC working groups for SCADA, substation automation, protocol security, and interoperability. He is a founding member of the Technical Committee for the Distributed Network Protocol (DNP3). He has helped several major utilities develop technical requirements for their Advanced Metering Infrastructures, and is editing the IEC 62351-5 standard for security of the IEC 60870-5 and DNP3 protocols. Most recently, he and the EnerNex team are supporting NIST in its efforts to accelerate the Smart Grid standardization process.

Before joining EnerNex, Grant spent a total of 17 years developing embedded data communications software for GE Energy and Nortel Networks.

Grant has a Bachelor of Applied Science in Systems Engineering from the University of Regina, Saskatchewan, and is a registered Professional Engineer in the province of Alberta, Canada.

Krish Narendra, General Manager, Technology and Quality ERLPhase Power Technologies

Krish Narendra, PhD is the General Manager (Technology & Quality) of ERLPhase Power Technologies Ltd since 2007 when Easun Reyrolle bought the Relay and Recorder division of NxtPhase Corporation.

He has been part of the company from 1996 when it was known as APT (Alpha Power Technologies) and has contributed to the introduction of advanced numerical relays in the North American Transmission Power Grid.

Krish has over 20 years of experience in various digital signal processing design and implementations for Power System Protection, Monitoring, Control and Analysis on advanced microprocessors. He is the chief architect for Synchrophasors (PMU) and IEC 61850 station and process bus protocol implementations in ERLPhase

Krish is a member of the PRTT of NASPI and actively participates in PSRC working groups He has published over 20 papers in various IEEE / IEC journals, and conferences. His areas of interests include HVDC Controls, Neural Networks, and SynchroPhasor Technology.

**David Beauvais, Smart Grid Project Leader
CanmetENERGY, Natural Resources Canada**

David Beauvais, P.Eng., is the Smart Grid Project Leader at CanmetEnergy - Natural Resources Canada. His responsibility is to support the development of a smarter grid that will facilitate the integration of renewable energy technologies, electrical vehicles and smart appliances. His work focuses on addressing barriers, supervising R&D and identifying knowledge gaps for the industry.

Prior to joining CanmetEnergy, he was involved in network planning and modernization studies at Hydro-Québec. At the energy board of Quebec, he analyzed rate application and projects of regulated utilities. Before joining CanmetEnergy, he worked for the engineering firm AECOM, on electrical utility reinforcement projects in foreign countries.

David is an electrical engineer and has a Master's degree in Public Administration.

**Detlef Lange, CTO
Avantis Group**

Detlef Lange, the co-founder of Avantis Energy, is the CTO of the group and responsible for the whole turbine family design.

Detlef, as mechanical engineer, learned his skills in the turbine business in his native Oberhausen, and later worked many years for ABB and other companies in the electrical business. He is a keen problem solver and holds many patents in both wind turbines and electrical switchgear.

Detlef is concurrently Managing Director of the sister organization Switchcraft Group and lives and works from Oberhausen, Germany.

**John Setala, Managing Principal, United Services Group
Great River Energy**

John is the Managing Principal of United Services Group, a department of Great River Energy, a generation and transmission cooperative in Elk River, MN. In the last 14 years in this organization his work included managing engineering consulting for distribution cooperatives and municipals throughout the upper Midwest. These services include engineering planning, operations engineering support, distribution system design, substation design, GIS Mapping, software integration, and general technical services.

John has a Bachelors of Science Degree Electrical Engineering from North Dakota State University in Fargo, and a Masters of Business Administration from the University of Minnesota.

John's experience includes three years as an Electrical Engineer involved in research in digital communications at FMC Northern Ordnance, a Defense Contractor, and fifteen years as an Electrical Engineer for Minnesota Power, where his work included programming on the Energy Management System, Telecommunications Engineering, and Distribution System Engineering.

John has a Professional Engineer registration in Minnesota, Wisconsin, and Alaska, and holds a Master Electrician License in Minnesota.

**Todd Pistorese, Global Business Development Manager, Power Industry
OSIsoft Canada ULC**

As Business Development Executive at OSIsoft, Todd provides power industry expertise, sets strategic direction within the utility vertical market and works to educate customers and employees alike on emerging trends and the benefits of real-time data solutions.

During his career spanning thirty two years in the utility industry, Pistorese has worked closely with dozens of Electric Utilities, Generation Supply Companies and OSISOFT Partners. While at OSISOFT, Todd has held previous roles as Managing Director, Asia Pacific, Director Partner Channels, and Utilities Industry Manager. His experience from Puget Sound Energy was within T&D Operations, Power Planning, and IT Solutions for Operations

Pistorese has dozens of technical publications in trade journals and magazines on utility innovation in application of real-time data, GIS, T&D Operational improvement, and more recently SmartGrid initiatives.

Todd holds a BS Electrical Engineering, a Minor in Economics (both University of Washington), and an MBA (University of Puget Sound) in Seattle, WA, USA. He holds a US Patent for Automated Electric Plat Design.

William M. Pratt, Smart Grid Customer Program Director National Grid

Bill Pratt is a marketing, sales and business development professional with extensive experience in the energy, banking and insurance sectors.

As Smart Grid Customer Program Director Bill is part of a team responsible introducing smart metering and grid technology into National Grid's US footprint. Before assuming this role, he has held a variety of senior marketing positions responsible for profitably growing National Grid's regulated and non-regulated revenue base by adding new natural gas customers. He was also in charge of the Company's Fleet Services, Facility Maintenance and Security departments.

Prior to joining National Grid Bill held a leadership position in ProvEnergy Oil Inc. – Rhode Island's second largest home heating oil company. He has worked in a variety of marketing and strategy positions at Fleet Financial Group and AIG Insurance. Bill also has extensive merger and acquisition experience.

Mr. Pratt holds a BA in Economics from Trinity College in Hartford, CT and a MBA from Columbia University, New York, NY.

He is a past President of the Trinity Club of Providence and currently serves on the Board of Directors for the Audubon Society of Rhode Island and GrowSmart Rhode Island. He has lived and traveled extensively in the People's Republic of China and is a member of Columbia's Sino-US Business Forum.

Ralph Zucker, Director, Smart Grid Development BC Hydro

Ralph Zucker is a professional engineer with broad utility experience in engineering, economics, and strategic planning. He has been with BC Hydro since 1980 in a variety of engineering and management roles, including the management of large capital programs, the development of risk management tools and strategies, system performance management, customer interfaces and policy development.

Ralph has been active in a number of community leadership roles including Leadership Vancouver, the Quality Council of BC, and the Sustainability Committee of APEGBC. Ralph has previously been the CEA Distribution Council Representative for BC Hydro, an Executive Committee Member for WEI, and held a seat on the Board of Directors with GridWise Alliance. He is currently an active member of the IEEE Intelligent Grid Coordinating Committee, EPRI Distribution Executive Committee, EPRI PDU Sector Council and represents BC Hydro on the CIGRE Canada Executive Committee.

**Dale Pennington, Managing Director
Utiliworks Consulting**

Dale Pennington is the Managing Director of Utiliworks Consulting, an international professional services organization that helps utility clients assess, design, procure and deploy advanced metering systems and smart grid technologies. He has over 20 years of extensive experience working with water, gas and electric utilities. Dale is recognized for his authority in compiling profitability analyses and mentoring government partnerships at small and large U.S. based cities.

Dale has been the front runner for over 50 projects that captures Utiliworks' leading position in Smart Grid developments. Dale utilizes proven workflow and asset management techniques to critically optimize existing and new utility investments.

**John-Paul Farag, Consultant, Advanced Technology & Powertrain
Toyota Canada Inc.**

John-Paul Farag is a Consultant in the Advanced Technology and Powertrain department with Toyota Canada Inc. (TCI) based out of TCI's head office in Scarborough, Ontario. He is responsible for the promotion and education of Toyota Hybrid technology and other technologies to various internal departments and with Government agencies, NGO's, the media, and the general public.

John-Paul began as a Consultant in Technical and Regulatory Affairs in 2006, where he provided technical support for federal and provincial vehicle compliance and regulations. In this role, he was responsible for communicating regularly with product design staff, government staff and external groups to identify and resolve product, regulatory and advanced vehicle technology issues.

John-Paul holds a Bachelor of Engineering Science degree in Mechanical Engineering from the University of Western Ontario and a Master of Business Administration from the Edinburgh Business School (Heriot Watt University). He was a Student Trustee on the Niagara Catholic District School Board and Vice-President of the Ontario Student Trustees Association.

**Andrew Roehr, Vice President, Smart Energy Services
Capgemini**

Andrew Roehr is a Vice President with Capgemini's global Smart Energy Services group, where he has directed the delivery of Smart programs covering all aspects of Smart Grid, Smart Home and Smart Meter.

Working in the energy sector since the late 1980s, Roehr helped clients with the transition to deregulated gas markets, assisting in the decoupling of integrated firms and the creation of new markets and solutions for gas throughout North America. In the early 90's he began working on similar deregulation efforts for the US electricity market, working with regulators, utilities and other market participants to make the transition to a de-regulated power market.

He continues to be active in the development of regulation and policy for the NA power markets, and has a specific focus on the changing role and influence of the consumer.

**Bradley Williams, Vice President
Oracle Utilities Global Business Unit**

Bradley Williams is Vice President of Oracle Utilities Global Business Unit's Product Strategy responsible for Outage Management, Distribution Management, Mobile Workforce Management, Work and Asset Management, and Load Analysis utility applications and Smart Grid Strategy.

Brad had more than 24-years utility technology innovation experience. Prior to Oracle, Brad was a Research Director in Gartner's Energy & Utilities Industry Advisory Services focusing on utility applications of GIS, SCADA/EMS/DMS, Outage and Work Management, and Transmission & Distribution Asset Management research.

Brad has also directed PacifiCorp's T&D Asset Management responsible for long-term asset strategies and Business Technology that developed and implemented comprehensive IT investment programs. As Director of T&D Infrastructure Planning, Brad was responsible for PacifiCorp's Subtransmission Planning, Telecommunications, and operations Technology Development groups. Brad also worked at Southern California Edison for 10-years where he was involved in transmission system planning, distribution automation, and reliability programs.

Brad earned BSEE and MBA degrees from Cal Poly, holds 4 US patents on smart grid technologies, is a registered professional engineer in the State of California, and member of IEEE PES, UCA International Users Group, and CIM Users Group

Scott Fawcett, Director, Energy Industry and Smart Grid Cisco Canada

As the Cisco Canada's Energy Industry Director, Mr. Fawcett is responsible for identifying and developing technology solutions that meet the needs of the energy industry.

Scott leads the overall strategy and direction for the Smart Grid for Cisco Canada. This strategy is based on alignment with visionary utility companies looking to embrace the Smart Grid to reduce costs, generate new revenue streams, reduce GHG emissions and benefit customers. Scott is also a key member of Cisco's global Smart Grid strategy team and draws upon these resources to support the needs of Canadian utility customers.

Scott has over 20 years experience working with various technology companies and standards bodies to deliver technology solutions for the energy industry. He has held roles such as the Global Energy Industry Manager for Microsoft and the Global Energy Manager for Cisco Systems. In these roles Scott was been responsible for the energy industry direction and competency distributed across 65,000 employees in over 100 offices, world-wide.

Scott has a Bachelor of Science from the University of Saskatchewan, an MBA from European University, Belgium, and executive training at Stanford, MIT, Caltech, Wharton and The SANNO Institute (Tokyo).

Dave Fedirchuk ERLPhase Technologies

David Fedirchuk graduated from the University of Manitoba with a B Sc degree in Electrical Engineering in 1972. Since then, he has worked for 25 years for Manitoba Hydro, a power utility in the areas of HVDC Transmission, Distribution Design and System Performance. Work in these areas involved commissioning of equipment, study and resolution of power system disturbances and the assessment of operation and application of protective relays within the power system.

In 1985 he became involved in the development of microprocessor based protective relays and recorders and holds several patents for innovation in this area. In 2000, David worked with NxtPhase Corporation as a product development manager for the power utility industry. David has presented papers to several power system conferences in North America in the areas of power system protection and monitoring. Today, David is working with ERLPhase Power Technologies, in the area of product development helping to develop the next generation of protection and recording technologies.

Tom Molinski, Emerging Energy Systems, Power Planning Division Manitoba Hydro

Tom Molinski has a BSc degree in Electrical Engineering and a Masters of Electrical Engineering degree from the University of Manitoba. Tom has worked for Manitoba Hydro for the past 35 years, and spent his first 20 years at Manitoba Hydro in the Transmission and Distribution area before moving to Power Supply in 1995. Tom is currently the Section Head of Emerging Energy Systems in the Power Planning Division. He is responsible for research, planning, concept development, and recommending emerging energy technology projects (like wind, small hydro, bioenergy, energy storage, and electric vehicles) suitable for Manitoba Hydro to implement now or in the future.

Tom works with academia, government, various research groups, and several learned societies to determine Manitoba Hydro's energy strategy of the future.

Kurt Simonsen, M.N.R.M., P. Eng Province of Manitoba

Kurt Simonsen is the manager of hydroelectric and transmission issues at the Province of Manitoba. In this capacity, Kurt has been responsible for the development of electrical reliability legislation for the Province of Manitoba. Kurt participates on the federal, provincial, and territorial electricity working group representing Manitoba in the negotiations with the US Federal Energy Regulatory Commission and National Electrical Reliability Corporation on protocols and mechanisms for the international regulation of mandatory electrical reliability standards. Kurt has also represented the Province of Manitoba in the development of regional energy policy issues for international initiatives such as the Midwest Governors Energy and Climate Change Accord, the Western Climate Initiative, Powering the Plains, as well as energy policy advisor representing Manitoba to the International Energy Agency.

Prior to his career in government, Kurt was a private consultant for 17 years where he provided specialty advisory services to electricity regulators on utility rate applications and engineering consulting services to utilities across Canada.

Kurt has a degree in engineering and a Masters degree in Natural Resources Management from the University of Manitoba

Ralph Kurth, P.Eng. PMP President Teshmont Consulting

Ralph was born and raised in Winnipeg, Manitoba where he received a BSc degree in Computer Engineering (with distinction) from the University of Manitoba in 1987. Shortly after graduation, he joined Teshmont Consultants of Winnipeg, a consulting engineering company specializing in high voltage power transmission systems. Over his 23 years with the company, Ralph has been involved in all aspects of power transmission system study and design and has worked as a Senior Project Manager, Substation Automation Department Manager and Operations Manager.

Today, Ralph is the President of Teshmont, responsible for oversight of the day-to-day operations of the company as well as establishing the longer term strategic direction and objectives of the organization. He is a registered engineer in the provinces of Manitoba, Ontario, Alberta and British Columbia and is a registered Project Management Professional with the Project Management Institute of America.

In addition to his work at Teshmont, Ralph is actively involved with the Consulting Engineers of Manitoba (CEM) and he is also a director of ESAM.

**Pierre Guimond, President, CEO
Canadian Electricity Association**

Pierre Guimond was appointed President and Chief Executive Officer of the Canadian Electricity Association (CEA) in May 2008. As President of CEA, Mr. Guimond acts as spokesperson on issues of national concern to the electric utility industry.

Prior to joining CEA, Guimond served as Director, Federal Government Liaison for Ontario Power Generation Inc. (OPG). Since 2003, he was seconded to the Canadian Nuclear Association where he coordinated regulatory activities and guided policy development initiatives aimed at improving the nuclear legislative and regulatory frameworks. He also served as spokesperson for the nuclear industry and contributed to building public acceptance for nuclear power's re-emergence as a viable energy option in Canada.

Throughout his extensive career, Pierre has worked in a wide range of government relations as well as political roles. From 1991 to 1999 he was the head of government relations at CEA, and prior to that managed Consumer and Corporate Affairs Canada's (now Industry Canada) Grants and Contributions Program where he implemented a regulatory program in the area of consumer protection.

Guimond has also served as Executive Assistant and political advisor to a number of federal cabinet ministers, and in 1979 was the Executive Assistant to the Speaker of the House of Commons, the late Honourable James Jerome.

Pierre holds an Honours B.A. in Political Science from Carleton University.

Thank You...

ESAM extends our warmest thanks to all of our speakers, panelists and delegates for taking the time out of your busy schedules to participate in the discussions today. You have all contributed to making the first conference of this kind in Manitoba a success.

This conference would not have been possible without the support of our sponsors and exhibitors. We thank you for supporting us in organizing this conference.

We look at this as just a beginning in a series of discussions, and collaborations towards creating a more efficient, responsive and cleaner system of energy generation, delivery and consumption.

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- OSIsoft Canada ULC
- Electricity Forum
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- RTDS Technologies
- CG Global Power Systems
- Manitoba HVDC Research Center

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