

EUCI Presents a Conference on:

# Implementation of the Smart Grid for Canadian Electric Utilities

27– 28 March 2008

InterContinental Toronto Yorkville  
Toronto, Ontario  
Canada

Hear from these Canadian utilities with real world examples of smart grid technology implementation:

BC Hydro  
Hydro One  
Chatham Kent Hydro  
ENMAX  
Toronto Hydro  
Milton Hydro

Conference Produced in Collaboration  
with Natural Resources Canada



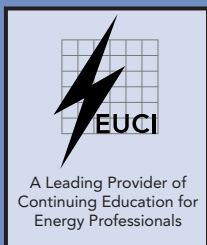
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# Implementation of the Smart Grid for Canadian Electric Utilities

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## OVERVIEW

Global warming, rising energy prices, global energy security, and energy efficiency are front page news and top of mind for many industry leaders, inventors, and investors. Significant steps will be taken in the next 15-20 years for modernization of the electricity distribution system in Canada to address these issues. These changes will create an intelligent electricity infrastructure through smart meter implementation and distribution system automation initiatives that provide concrete steps toward the future smart grid, one which is efficient, intelligent, and robust. The smart grid serves an important role in facilitating energy efficiency programs and integration of renewable and distributed energy, key trends that will help ensure improved environmental outcomes in the future.

This conference will explore a variety of strategic and tactical issues in implementing a smart grid network in Canada:

- o Overview of the key organizations developing the smart grid
- o Developing the business case and revealing the value streams for the smart grid
- o Improving T&D operations with smart grid concepts
- o Developing your smart grid implementation road map
- o The consumer side of the smart grid – the utility to consumer interface
- o User case studies from utilities that have begun to implement smart grid technologies
- o Data management and standardization
- o Network security

Join utility executives and technology providers to learn how your utility can take advantage of an open, standards-based advanced utility network.

## WHO SHOULD ATTEND

### Utility Professionals to Include

- Smart metering and metering project directors
- Energy Service Providers
- Distribution Directors
- Metering Directors
- IT Directors
- Procurement Directors
- Energy Conservation Directors

### In addition

- Governmental Regulators
- Commissioners
- Vendors of smart grid products and solutions
- Financiers / Banking executives to the utilities industry

# Implementation of the Smart Grid for Canadian Electric Utilities

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## Program Agenda

### Day1 Thursday, 27 March 2008

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**Registration and Continental Breakfast: 8:00 – 8:30 a.m.**

**SESSION I: 8:30 – 10:30 a.m.**  
**MAKING THE BUSINESS CASE FOR A SMART GRID**

**The Future of Energy - Efficient and Sustainable through the Smart Grid**

*Marion Fraser, Former Senior Policy Advisor, Ontario Minister of Energy*

Traditionally, our utility grids - electricity, gas, and water have been single purpose infrastructures - delivering a commodity from source to meter. Adding smarts to the grid has the potential to initiate a major paradigm shift. However it will be important to ensure that consumers share equally in the benefits that will come with changes.

**Addressing Challenges to Infrastructure Development with Smart Grid Concepts**

*Eli Turk, Vice President, Canadian Electricity Association*

The siting of new infrastructure is increasingly challenging. Effective, timely regulation and community support will be critical to the future development and deployment of the smart grid. This presentation will provide guidelines to address these challenges in order to move the smart grid forward.

**Building the Smart Grid Business Case: BC Hydro's Experience with Modernization of the Grid**

*Eric MeWhinney, Manager of Innovation and Sustainability, BC Hydro*

- Drivers for smart grid – Internal vs. external
- What is the business case?
- Developing a roadmap
- Smart grid applications including smart meters
- The smart grid program and alignment across business units
- Challenges – Today and tomorrow

**Morning Break: 10:30 – 10:45 a.m.**

### About EUCI

EUCI is a leading provider of conferences, seminars, workshops and courses designed exclusively for the energy industry. We seek to create a forum for professional communication and exchange knowledge and ideas among energy industry professionals and others interested in the industry.

Join the thousands of others who have attended our events since 1987 and see why they keep coming back.

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# Implementation of the Smart Grid for Canadian Electric Utilities

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## Program Agenda

### Day 1 Thursday, 27 March 2008 (Continued)

**SESSION II: 10:45 a.m. – 4:10 p.m.**

#### **IMPROVING T&D OPERATIONS WITH SMART GRID CONCEPTS**

##### **Interoperability with the Smart Grid**

*Paul Karr, Vice President of Marketing, Trilliant Networks*  
*Peter Landauer, Utilities Subject Matter Expert, Capgemini*



More than 800,000 smart meters have been installed across the Ontario region, making it a leader in the North American market in terms of adoption of advanced metering infrastructure. The Hydro One Smart Meter Project was awarded Best North American Project by UPN for its work in this area based on end-to-end open standards and a vision for driving needed energy solutions. The AMI infrastructure, provided by Trilliant Incorporated, can be leveraged to increase functionality in all of the following areas:

- Collecting meter data
- Demand response and conservation
- Real time outage detection
- Mobile workforce management
- Eventual integration of distributed generation

In this case study presentation, Trilliant and Capgemini will detail their experiences with the projects across North America and future benefits.

##### **Real Time Communication for the Smart Grid**

*Hugh Bridgen, Director - Metering & Technical Services, Chatham-Kent Hydro*



This case study will discuss how Chatham-Kent Hydro worked with the Tantalus TUNET technology to help satisfy Ontario's Smart Metering Initiative, enable customers to better manage energy consumption, generate efficiencies across distribution systems, and improve customer satisfaction.

**Group Luncheon: 12:05 – 1:15 p.m.**

##### **Distribution Automation for the Smart Grid**

*Dean Craig, Project Specialist Engineer, ENMAX*  
*Steve Greey, S&C Electric Canada*



ENMAX Power Corporation has initiated the largest distribution automation project in Canada in their Calgary, Alberta, service territory. Enmax's system uses S&C's advanced distribution automation system that utilizes distributed intelligence and peer-to-peer communications to constantly monitor the power system. This case study will cover the project to date focusing on the increase in reliability and improved utilization of SCADA.

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# Implementation of the Smart Grid for Canadian Electric Utilities

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## Program Agenda

### Day 1 Thursday, 27 March 2008 (Continued)

#### **Distributed Generation and the Smart Grid**

*Peter Baroutis, Toronto Hydro*

*Farid Katiraei, Ph.D., T&D Research Engineer, Natural Resources Canada*

The need for more capacity and an aging energy infrastructure along with social and environmental trends and innovative technologies are pushing distributed generation (DG) to the forefront of new electricity generation. Fully realizing the benefits of DG requires not only a new way of thinking about generation but also a new way of thinking about distribution system design and re-structuring. A smart grid approach aims to integrate DG in a seamless, efficient, and reliable manner. This presentation will provide an overview of the current status and prospects, in the context of smart grid, toward DG applications and integration practices for Canadian utilities. Toronto Hydro's experience with connecting DG to the grid and the overall benefits will be discussed.

**Afternoon Break: 2:35 – 2:50 p.m.**

#### **Substation Automation and Implementation of IEC 61850 Standard in Canada**

*Damien Tholomier, Automation Products Marketing Director, Areva T&D*

IEC 61850 is the new international standard for communication in substations. It enables integration of all protection, control, measurement, and monitoring functions within a substation and provides the means for high-speed substation protection applications, interlocking, and intertripping. It combines the convenience of Ethernet with the performance and security essential in substations today.

AREVA has been an active participant in development of the standard and has successfully demonstrated the interoperability of its protection and control devices supported by the IEC 61850 standard. This presentation outlines experience with implementation of IEC 61850 substation automation standard and discusses solutions to assist migration from conventional or different legacy substation automation systems to IEC 61850 based SAS.

#### **Operations Improvement through Distribution Network Management**

*Peter A. Barnes, Real-time Operations Management - Utility Solutions, CGI*

Deregulation, regulatory pressures, and customer expectations for low rates and highly reliable services are driving utilities to find solutions that optimize operations and enhance customer service. To achieve these goals utilities in Canada will need to plan and implement solutions to improve the management of their distribution systems.

### Sponsorship Opportunities

Do you want to meet this powerful audience to drive new business? For sponsors and exhibitors, this means an unparalleled opportunity to raise your profile before a manageable group of executives who make the key purchasing decisions for their businesses. There are a wide range of sponsorship packages available which can be customized to fit your budget and marketing objectives, including:

- Cocktail Reception
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Please contact Andrea Derby, 303-770-8800 x 301 or [aderby@euci.com](mailto:aderby@euci.com) for more information

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## Program Agenda

### Day1 Thursday, 27 March 2008 (Continued)

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#### **SESSION III: 4:10 – 5:30 p.m. LEADERS DISCUSSION PANEL**

Summary from Key Panel Members

Moderated by *Konrad Mauch, Principal, KM Technical Services*

**Networking Reception: 5:30 – 6:30 p.m.**

Sponsored By:

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### Day2 Friday, 28 March 2008

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**Registration and Continental Breakfast 8:00 – 8:30 a.m.**

#### **SESSION IV: 8:30 – 10:00 a.m. COMMUNICATION & CYBER SECURITY**

##### **Communications for Utility Automation: The Status of IEC Standards and the Benefit of Standardization**

*Grant Gilchrist, Consulting Engineer, Utility Data Communications, Enernex*

This presentation will provide an overview on using the IEC 61850 standard for communications networks in distribution substations and systems from the perspective of the editors for the standard and experts in the area of communications for utility automation. Major points covered include:

- Introduction to IEC 61850
- Update on recent IEC standardization activities and IEC TC57 working groups
- A technical overview of the standards, architecture, and benefits

##### **A Holistic Approach to Operational Cyber Security for the Smart Grid**

*Peter Vickery, VP Sales, Marketing and Business Development, N-Dimension Solutions*

- What is driving cyber security requirements?
- Issues & challenges – Technology
- Overview of cyber security for power & energy
- Smart grid background context
- Overview of potential solutions

**Networking Break: 10:00 - 10:30 a.m.**

**Agenda Continued on Next Page**

# Implementation of the Smart Grid for Canadian Electric Utilities

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## Program Agenda

### Day2 Friday, 28 March 2008 (Continued)

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**SESSION V: 10:30 a.m. – 12:30 p.m.**

#### **FUTURE BENEFITS OF THE SMART GRID: DEMAND RESPONSE AND CONSERVATION**

##### **Benefits of the Smart Grid as they relate to Current Initiatives and Future Plans at Toronto Hydro**

*Thor Hjartarson, Manager - System Reliability Planning, Toronto Hydro*

- Customer reliability improvements and customer satisfaction
- Conservation and demand management
- Smarter system analysis and planning
- Risk Planning as it relates to safety, workforce, security, regulatory, energy market

##### **Smart Home Energy Conservation Program**

*Clinton Roeder, Senior Vice President and General Manager, Direct Energy*

*Blair Makin, VP Marketing, Bell Canada*

*Ian Rowlands, Associate Professor, Environment and Resource Studies, University of Waterloo*

*Andrew Peers, Applications Analyst, Milton Hydro Distribution, Inc.*

In an ongoing effort to encourage a culture of conservation in Ontario, Direct Energy teamed up in the summer of 2007 with Milton Hydro and Bell to launch a smart home energy conservation program. The program gives residents of Milton, Ontario high-tech tools to make the most of their smart meter so they can better manage energy consumption and reduce their environmental footprint. Participants are also taking part in a study on the impact the technology has on their consumption behavior. During this discussion, panelists will explain the program, demonstrate how the technology works, and review benefits to both consumers and Ontario's electricity system. A researcher from the University of Waterloo will share highlights of preliminary results of their independent analysis of program outcomes so far.

##### **Opportunities from an IESO perspective**

*Don Tench, Director, Market Evolution, Independent Electricity System Operator (IESO)*

The electricity system is changing at a rapid pace. The goal of the smart grid is to use advanced, information-based technologies to increase grid efficiency, reliability and flexibility, and reduce the need for new generating, transmission and distribution facilities. This presentation will outline both the opportunities and challenges the smart grid poses.

**Conference Adjourns 12:30 p.m.**

# Optional Post Conference Event: Off Site Tour of Kinectrics IEC 61850 Interoperability Testing Lab

28 March 2008

## Tour Timing: 12:30 – 5:00 p.m.

The need to satisfy increased customer reliability expectations while operating in a difficult, cost-conscious competitive environment has encouraged many utilities to refurbish, or build substations with integrated protection, control, monitoring, and metering systems. With this drive, a new set of global standards IEC-61850, IEC-61970, IEC-61968 has emerged to facilitate seamless communications over a common, open information highway.

Kinectrics' Interoperability Testing Lab offers full-scope testing for Substation Automation Systems, EMS, and DMS systems to ensure seamless communications in power utilities. Testing services offered include IEC-61850, IEC-61970 and IEC-61968 based interoperability tests, function, and performance tests, impact studies and site commissioning services.

The lab facilities are equipped with a state-of-the-art Omicron CMC256 test set with full Net-1 option, as well as a Real Time Digital Simulator (RTDS) with full GTNET option and a software suite for GOOSE and message generation, Common Information Model (CIM) testing, background traffic simulation, and protocol analysis.

Interoperability Testing is a vital step to ensure the reliability of an IEC-61850 based substation automation system. Guests on this tour will learn about state of the art testing methods and their importance through presentations and live demonstrations. This tour will leave the hotel promptly at 12:30 p.m. and return at 5:00 p.m. Lunch and beverages will be provided at the Kinectrics Lab.

This event is complimentary and advance registration is required. Space is limited, please register as soon as possible to guarantee your spot.

## Tour Sponsored by:



## PROCEEDINGS

The proceedings of the Conference and Workshops will be published and one copy will be distributed to each registrant at the conference. Extra copies of the composite proceedings will be available at \$295.00 USD each.

## CONFERENCE LOCATION

EUCI has reserved a room block at the InterContinental Toronto Yorkville, 220 Bloor Street West, Toronto, Ontario Canada M5S 1T8 for the nights of 26-27 March 2008. The rate is \$209 CAD single or double occupancy, plus applicable tax. Call the Intercontinental Yorkville at 1-416-960-5200 for reservations and mention the EUCI Conference to get the group rate. Make your reservations prior to 7 March 2008. There are a limited number of rooms available at the conference rate. Please make your reservations early.



## REMEMBER, EVERY 4TH REGISTRANT IS FREE!

### REGISTRATION INFORMATION

For instant registration, call (303) 770.8800 or fax the Registration Form to (303) 741.0849.

#### Register 3, Send 4th Free!!

Any organization wishing to send multiple attendees to these conferences may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.

All cancellations received on or before 22 February 2008 will be subject to a \$195 processing fee. Written cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI conference or publication. This credit will be good for six months. In case of conference cancellation, Electric Utility Consultants' liability is limited to refund of the conference registration fee only. For more information regarding administrative policies such as complaint and refunds, please contact our offices at (303) 770.8800.

EUCI reserves the right to alter this program without prior notice.

#### MAIL DIRECTLY TO:

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5555 Preserve Drive  
Greenwood Village, CO 80121

#### FAX TO:

(303) 741.0849

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**PLEASE USE THIS WHEN REGISTERING FOR THE CONFERENCE**

## PLEASE REGISTER THE FOLLOWING

Implementation of the Smart Grid for Canadian Electric Utilities Conference, \$1095 USD (1149.75 including GST Tax), **Early Bird Before 14 March 2008, \$995 USD (1044.75 including GST Tax)**

Yes, I am planning to attend the Post Conference Tour.

Extra copies of the proceedings may be purchased for \$295 (add \$50 for international shipping)

How did you hear about this event? (Direct email, Colleague, Energy Central, etc.)

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### ENERGIZE WEEKLY

When you sign up to "Energize Weekly" you will receive a new conference presentation each week via email on a relevant industry topic. The presentations are selected from a massive library of over 1000 current presentations that EUCI has gathered during its 20 years organizing conferences.

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