Commercial Member Edition November 2008

the distributor

AN ELECTRICITY DISTRIBUTORS ASSOCIATION PUBLICATION

Aztech In-Home Display Provides Innovative Tool to Monitor Electricity Use and Cost

Some people have described the Aztech In-Home Display as a cross between the Wurlitzer model "1015-Bubbler" Jukeboxes built near Niagara Falls in the '40's and a Nintendo Game Boy™. Certainly the classic gothic-like curvaceous styling and "electric rainbow" light bar of the Aztech device reminds one of the popular Wurlitzer styling but the Aztech In-Home Display feels and operates much more like the hand held game.

Children seem to intuitively adopt the Aztech device which is only a little larger than a Game Boy. They quickly use it to become the masters of home energy use. In trials of the Aztech In-Home Display many families reported that one child would take it upon themselves to become the family energy watchdog and mastered the easy button arrangement to keep the family carbon footprint as low as possible.

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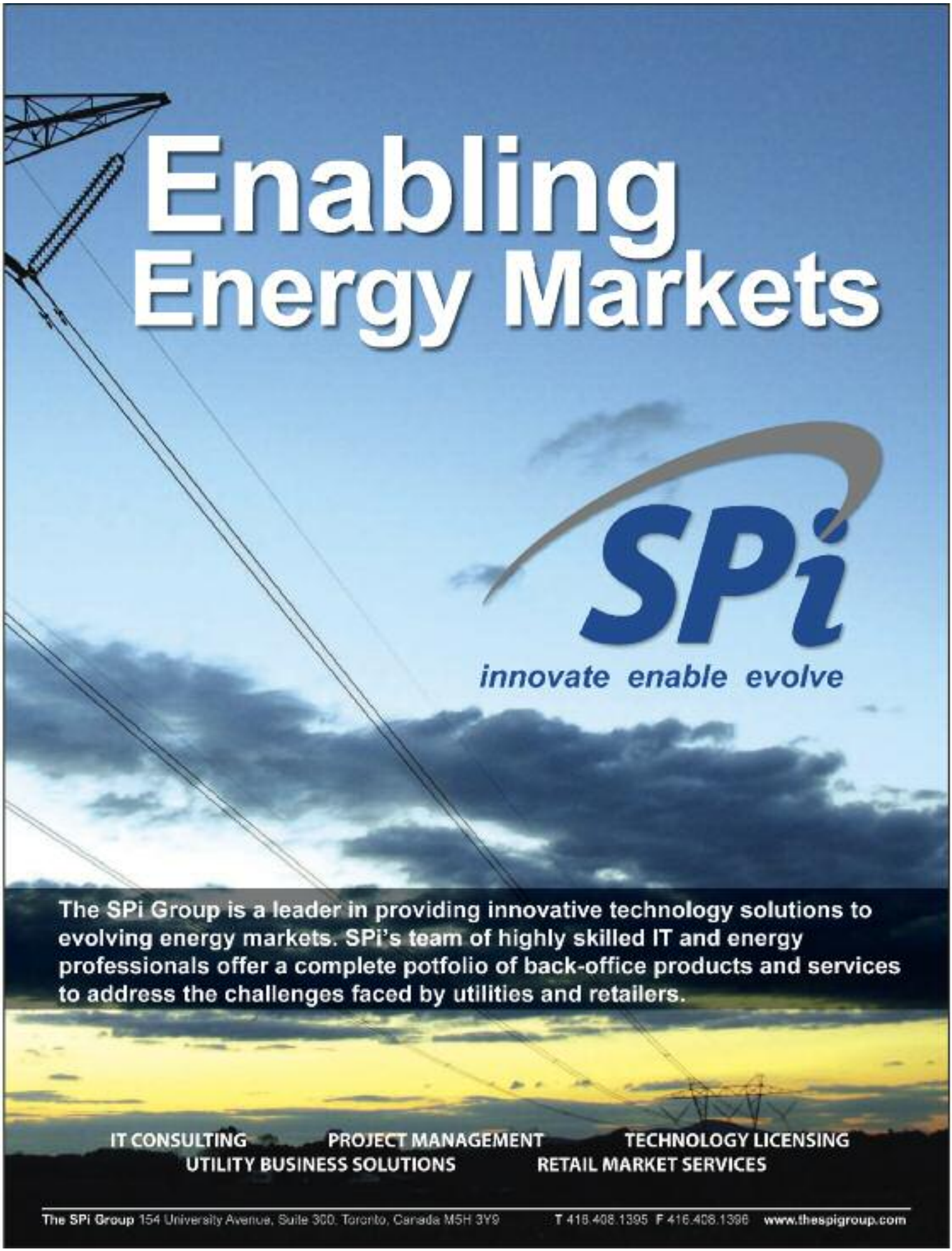
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Bryan Boyce
CHAIR, EDA

I hope our readers will benefit from and enjoy the editorial focus in this special edition that highlights the commercial enterprises that support Ontario's LDC sector.

Message from the EDA Chair

SPECIAL COMMERCIAL MEMBER EDITION

Ontario's LDCs Fuel an Industry that Spends Almost $3 Billion Annually on Goods and Services

The EDA's commercial member base is as diverse as the varied products and services they provide. As a former EDA Board representative on the Commercial Committee, I recognize the valuable contributions that have been made by this committee over the years. I hope our readers will benefit from and enjoy the editorial focus in this special edition that highlights the commercial enterprises that support Ontario's LDC sector.

As the roles and responsibilities of the province's electricity distributors have evolved and changed, so too have their needs and requirements. For manufacturers and suppliers, new technologies are driving improvements in everything from information systems, metering, and demand management, to infrastructure and safety equipment to protect our workforce. Service providers, such as consultants and legal firms are offering a wide array of services that range from assisting distributors in the management of a complex regulatory environment to providing expertise in conservation programming.

It is a lucrative marketplace - commercial entities servicing Ontario's electricity distributors are fuelling an industry that spends almost $3 billion a year on goods and services. As members of the EDA, you have the distinct advantage of being directly connected to this important marketplace.

New business opportunities continue to emerge in this dynamic market, driven in large part by a government energy policy that recognizes the importance of a 'greener' approach to the production and use of electricity, with a focus on renewable and clean energy alternatives, and a greater emphasis on energy efficiency and CDM.

Significantly, Deputy Premier and Minister of Energy and Infrastructure, George Smitherman announced recently that he foresees an augmented role for distributors in CDM in moving forward, "a relationship that dictates that LDCs be more clearly in the driver's seat when it comes to leading conservation and energy efficiency initiatives." To facilitate this role-change for distributors in CDM, as well as to accomplish other government objectives, the Minister made it clear that changes are coming in the form of policy and legislative alterations designed to "lead the way, to send a strong, confident message that Ontario is dedicated to best-in-class programs and best-in-class progress."

The government's recognition and support of the leading role that LDCs can and should be playing in the development of the sustainable communities of tomorrow, is consistent with the long-term LDC vision of a distribution system that will make a significant contribution to achieving environmentally sustainable communities through the smart use of electricity. With this in mind, distributors will be looking to the ingenuity of product vendors, suppliers and service providers to provide the support needed to achieve these important goals.

All members of the EDA contribute to making our Association strong. With over 130 commercial, affiliate and associate members, we are pleased to have this opportunity to highlight the contributions of this important industry group. On behalf of the EDA Board of Directors, I would like to extend a thank you to all of our commercial, associate and affiliate members for your current and ongoing support of the Association.

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- **Steve Hauser**, President, GridWise™ & Vice President of Strategy, GridPoint, Inc.
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ELECTRICITY TODAY

Message from the Commercial Member Steering Committee Chair David Windley

FORMATION OF ISSUE-FOCUSSED STEERING SUB-COMMITTEES WILL ADDRESS PRIORITY COMMERCIAL MEMBER ISSUES

As Chair of the EDA's Commercial Member Steering Committee (CMSC) I am pleased to provide an update on the work of our Committee and to speak to the benefits of commercial membership with the Association.

The Association's 11-member Steering Committee reflects the rich and diverse commercial base of the EDA's 120 members, with representatives drawn from a wide spectrum of companies that service the electricity distribution sector. Since the EDA's annual meeting in March, the Steering Committee has met three times with EDA staff and Board Representative Brian Hollywood to explore commercial member needs.

Last year, the Steering Committee developed and distributed a survey to commercial members to assess the usage of current member privileges and identify new opportunities to enhance the value of their membership.

Member feedback from the survey has been invaluable and has helped the Committee to focus its efforts in 2008. We have reviewed the responses and evaluated the issues of importance to our commercial members. Five sub-committees were formed to further explore the key member wants and needs and develop possible initiatives to address them. The focus areas include: EDA Events; Member attendance/participation; Benefits of Membership; Sponsorship Opportunities; and, Web Presence.

We have made some positive headway with this approach. For instance, we looked at ways that we might better communicate upcoming EDA events and conferences to the membership. As a result, I am pleased to report that the EDA is now sending a monthly news bulletin alert to Commercial Members to inform them of upcoming Association events and EDA-sponsored conferences. We hope this will keep members better informed of current networking opportunities and the registration/exhibitor discounts available to them. For Commercial Members who were interested in attending the series of EDA District annual meetings that took place in September and early October, the timely communications provided registration and program details and generated a higher profile for these important annual networking events.

We have also worked with the EDA to enhance the Association's website. Specifically, enhancements have been made to the CMSC webpage - providing greater access to information on survey results and Steering Committee activities, among other materials. In the new year, a new search function will allow all members - in particular LDC's - to perform a search for Commercial Member services and/or products by keyword easier and more effective. The keyword search will function by identifying keywords used in your company's description. With this in mind, I strongly encourage you to review the member contact sheet with your company's description, included in your 2009 renewal package. Please consider carefully the keywords you will select in your company's description as they will have a significant impact on potential customers finding your product or service offerings.

In addition to the ongoing activities of our sub-committees, we are also looking at how we might enhance Commercial Member presence at the EDA's Annual General Meeting, particularly at the opening reception on March 8, 2009. This work will continue for future AGMs.

I'd like to take this opportunity to thank the members of the EDA Commercial Member Steering Committee for their dedication and volunteering their valuable time to address Commercial Member needs (see page 30). Additionally, I'd like to thank EDA staff and most particularly, Board Director, Brian Hollywood for their time and efforts in helping to facilitate our progress.

As members of the EDA we are afforded a direct link to the Association's LDC members. Likewise, by virtue of our membership status, distributors are provided direct access to our goods and services. It is an arrangement that benefits all parties and brings us together under the umbrella of a reputable and long-standing Association.

I invite you to contact myself, or other committee representatives with any input or feedback you may have as it relates to Commercial Membership with the EDA, or the activities of your Steering Committee.

Compelling Atten

The following article is based on a presentation given by Stephen Costello of Costello Associates and Paul Weatherhead, Vice President and Chief Security Officer of Digital Boundary Group at the 2008 EDIST conference in Markham, Ontario. The article represents the views of the authors.

The objective of the presentation was to inform the Ontario electricity distribution sector why senior management, engineers and IT professionals need to employ a more coordinated effort to effectively deal with cyber risks to contemporary utility infrastructures. Since the conference our views have only changed in one respect. The need to involve every employee in every utility and every organization directly for those involved in servicing the information technology infrastructure of the utility in cyber security awareness and action plans. The most cost-effective solutions to cyber security issues in modern utilities will involve all employees.

Digital Boundary Group is an information technology security assurance services firm serving clients throughout North America. The company provides information technology security auditing and compliance assessment services, information security consulting, penetration testing, vulnerability scanning, threat advisory reports, network intrusion and computer forensic investigation services, and network security training. John Millar is President of Digital Boundary. For more information: ***www.digitalboundary.net****.*

There is a compelling case supporting the need for a culture in utilities in which everyone is committed to knowing where vulnerabilities may exist, assessing if vulnerabilities already exist, and being vigilant to ensure that new vulnerabilities are not created. If vulnerabilities are created and exploited, it is critical that risks are minimized and recovery plans are quickly implemented to reduce and recover from any loses.

Recent media coverage has continued to raise awareness and demonstrate that cyber security vulnerabilities relating to utilities' operations represent a threat to North America.

Vulnerability awareness is beneficial only if the product vendors involved and the utilities using the product take action to apply the corrective patch or take action immediately upon discovery. Earlier this year vulnerabilities were discovered in a vendor's SCADA system. The vulnerability had been identified to the vendor a full five months before customers were provided with a patch. The lengthy response time jeopardized and comprised security of the SCADA system, a system at the core of a utility's operation. This example illustrates why it is important that new organizational attitudes toward security need to be put in place.

Historically, SCADA systems involved substation control through leased phone lines and "closed systems" with no external connections. Maintenance was likely through dial-up modems and proprietary communication protocols were used.

Today there are multiple, and in some cases, public connections to SCADA systems. Remote devices are polled through leased telephone lines, private radio networks, public radio networks and cellular data networks. Standards based communication protocols layered on TCP/IP are now used. There are interconnections with external agencies including neighbouring utilities, system operators, transmitters and SCADA service clients.

Issues for SCADA systems include access - who may be able to access the systems and network structure. What separates the SCADA system from the rest of the network and who is responsible for security?

Other SCADA system issues include: the use of default passwords; an assumption that proprietary protocols are secure; a mistaken belief that nobody would want to attack these networks; and the likelihood that

tion to a Cyber Security Culture

John Millar

applications were not written with security in mind. IT threats and vulnerabilities can be placed in five categories: remote exploits; client side exploits; social engineering; malicious code; and, the enemy within.

Although less common than other threats, remote exploits can cause the most damage. These exploits often contain multiple exploit payloads and can spread rapidly. Newer remote exploits are capable of evading detection.

Client side exploits are the most common. These exploits involve human intervention and are difficult to detect. Like external exploits these can contain multiple exploit payloads. Internal exploits can take multiple forms: from visiting a malicious web site to opening a compromised Office document, PDF file, email or image file.

Social engineering is the most successful form of exploit. Social engineering involves exploiting humans. These exploits can be as simple as stolen credentials or as complex as a reverse tunneling Trojan.

Malicious code can enter the network via many paths and these exploits are most often autonomous. Botnets are built on malicious code. Although the malicious intent may only be the use of network resources, the network has been compromised.

The enemy within is another human exploit. The exploit involves everything from a disgruntled employee, contractor or consultant, to misuse of the network through such vehicles as P2P and home or personal computers attaching to the network.

Although technology based offerings are often presented as the solution to cyber security vulnerabilities the most cost effective solution engages all employees in a new culture of cyber security.

Engineering and IT must be brought together to address cyber security risks in the operation of the utility. A contemporary utility network offers many opportunities for malicious access. The consequences of a security breach are so significant that any lack of cooperation cannot be tolerated. Only by having a complete understanding of the systems, the connectivity of disparate parts of the operations and administrative systems, use of the Internet and authorization and authentication of all users, can these critical professionals understand where vulnerabilities exist. Network and SCADA cyber security training should be provided for both SCADA system engineers and IT network administrators.

Senior management must demonstrate a commitment to cyber security and establish expectations for cyber security performance and hold individuals responsible for performance. Cyber security and vulnerability assessments should be a vigorous ongoing process. Comprehensive plans for backup and disaster recovery must be mandated by senior management and operationalized, practiced and updated annually. Senior management should also establish an IT advisory council to ensure effective collaboration.

Educating employees on the categories of risk, the types of exploits and their expected role in defending the organization must also be part of the security program. Electronic end-user security awareness training programs already exist and are not expensive. Finally, no regulatory standard can be expected to address all threats to the organization. Having a fully informed, organized and engaged employee group will provide the strongest base to identify, defend and, if necessary, quickly and effectively recover from any exploit.

Power Savings Blitz: The Small

EnerSpectrum Group serves distribution utilities and organizations that support utilities. The company provides the bench strength and solutions to make a difference in how utilities manage their assets, operations, programs and regulatory obligations. For more information: ***www.enerspectrum.com.***

The Ontario Power Authority has been busy on the CDM front in the past year. It has introduced several CDM programs, taking over from the Third Tranche programs, conceived and executed by LDCs for customers between 2005 and 2008. Borrowing from successful Third Tranche programs, the OPA has brought forth the Refrigerator Roundup, Peak Saver, Electricity Retrofit Incentive Program (ERIP), and most recently, the Power Savings Blitz Program, among others.

EnerSpectrum Group is intimately familiar with both ERIP and Power Savings Blitz. The firm is now the largest third-party evaluator of ERIP projects on behalf of some 23 LDCs. That's more than 300 Prescriptive and Custom retrofit projects, cumulatively representing more than $20 million in energy efficiency investments by larger commercial and industrial customers. Power Savings Blitz is just getting underway for smaller commercial customers with less than 50 kW demand, and EnerSpectrum Group is managing its implementation for five LDCs.

Though the evaluation, data base and processes for ERIP and Power Savings Blitz share some common ground, these are different programs, that require differing approaches to implement successfully, says EnerSpectrum's Bart Burman.

"With ERIP, you typically have much larger and longer installations due to the size of the commercial or industrial businesses, encompassing lighting, HVAC, motors and other technologies," says Burman, Managing Partner of EnerSpectrum Group. "And there is frequently a need to submit a Custom Application for incentives because one size doesn't fit all in this sector."

the OPA has brought forth the Refrigerator Roundup, Peak Saver, Electricity Retrofit Incentive Program (ERIP), and most recently, the Power Savings Blitz Program, among others.

On the other hand, the Power Savings Blitz program works strictly from a shorter prescriptive list of technologies, providing from $300 to $1000 in incentives to pay for retrofits. As the name suggests, it is intended as a "blitz" program, to retrofit retail stores

Business ERIP

and offices swiftly through lighting upgrades, insulating water heaters, and wrapping pipes. The challenge of the program is to get the early retrofit successes and build momentum around retrofitted clusters of stores or offices so that word-of-mouth works in your favour. It's also essential to get the local electrical contracting trade involved, particularly in small and mid-sized communities.

"Local contractors already have relationships with many of your target businesses, and perhaps know about the equipment currently installed," suggests Burman. "It also means that the LDC is spending more of the Power Savings Blitz incentive dollars in their own community, and helping local contractors improve their energy efficiency offerings."

But, cautions Burman, it can take time to cultivate and orient the local electrical trade, so a two pronged approach is needed. "That's why we have an electrical contractor on our project team. He not only ensures that early customer interest translates into quick installations, but also assists in contractor evaluation and orientation, and ensures that the work is done right." The firm also expends significant effort cultivating local business improvement organizations, chambers of commerce, and even local MPPs who can help get the message out there.

With its own contractor on the project team, and with toll-free access for local installers, the installer has ready help for both technical and incentive application questions. "We make it as easy as possible for the installers to get the prescribed technologies and incentive application right the first time, so that they can concentrate on quality retrofits, not paper work and red tape."

The Regulatory Modernization Act, 2007 (RMA) came in like a lamb in mid-January 2008. It has far reaching consequences for the regulated community. Ontario's government regulators and enforcers can now share compliance and complaint-related information across a number of designated ministries. Government ministries may also publish information on compliance and convictions against regulated companies on the Internet. Past convictions, even those pre-dating the RMA, will be used by the courts to increase fines for new convictions.

Operators beware: what your employees say to a Ministry of Labour inspector can also end up in the file of an MOE inspector. Distributors and operators with multiple points of contact with regulators should consider adapting their contact policies and training accordingly. One step is to appoint and train a compliance coordinator to manage contacts with all provincial regulators.

ONTARIO'S REGULATORY Big

What a Ministry inspector doesn't discover during a sanctioned visit through the front gate, he might be able to finagle from another agency when he gets back to the office. That's because Ontario's new *Regulatory Modernization Act, 2007* allows staff from 15 Ministries to share information and observations "likely to be relevant" to the enforcement or administration of a long list of acts and regulations.

The Act was proclaimed in force on January 17, 2008. The regulations prescribe 15 ministries including MOE, MOL and MNR. The sharing of information will apply to approximately 80 listed statutes and 600 listed regulations including the EPA, OWRA, *Pesticides Act, Clean Water Act,* OHSA, *Mining Act and Aggregate Resources Act.*

Ministers can authorize staff to:

- collect, use and disclose information about compliance and complaints
- publish compliance and complaint information about a company, (including information collected before the RMA came into effect)
- assemble inter-ministry field teams that could allow officers from one ministry to collect information for others during an inspection or audit.

One risk is that untrained personnel could inadvertently trigger an investigation of their facility by misinforming an inspector about some aspect of the operation with which they are not very familiar. Under the EPA and the OWRA, when a provincial officer comes to a

Brother is Watching

Douglas Petrie

facility, he or she is required, on request, to show his or her badge or authorization, and explain the purpose of the visit. However, the officer may not explain that anything he or she observes or records may be shared with inspectors or investigators at other ministries.

The RMA permits more than just sharing of data. Ministries can form teams to target repeat offenders, and ministers can publish consolidated information about an organization's complaints and compliance record. Previous convictions for provincial offences under an unrelated law, including those occurring before the RMA came into force, will be considered as factors to increase fines and penalties under environmental laws.

All of this means that operations personnel should be careful about what they divulge voluntarily to any inspector, and what they leave in plain view. From now on, all inspections should be considered multi-ministry inspections. Companies should be aware that regulators can share compliance data for approval or reporting purposes. Freedom of information confidentiality provisions should be invoked where applicable.

With the enforcement of all of these laws and regulations loosely tied together under the RMA, most operations will be challenged to recognize the gaps in their compliance with each. Operations with multiple points of contact with regulators should consider appointing and training a single individual at each facility to serve as the compliance coordinator for all provincial regulatory contacts.

*P. Douglas Petrie is a Partner and a Certified Environmental Law Specialist, at Willms & Shier Environmental Lawyers LLP, **www.willmsshier.com**.*

New Technology Helps Drive

Driving demand response with Honeywell's UtilityPRO™ (photo courtesy of Honeywell)

In 2007, the Ontario Power Authority launched its *peaksaver®* program, a province-wide demand response initiative for residential utility customers. Designed to reduce peak energy consumption by helping control demand during the hottest days of the summer, program success depends on maximizing customer participation.

In September 2008 the *peaksaver®* program had more than 53,000 participants, which allowed the program to achieve peak control in excess of 26 megawatts. The program successfully completed its 2008 activation season with five province-wide activations during the summer.

The *peaksaver®* program faces new challenges in expanding its reach beyond the early adopters of the program's first years. Now, participating local distribution companies (LDCs) must incorporate new ways of reaching the next wave of homeowners to meet the program enrollment targets.

For the *peaksaver®* program, one of the answers to this challenge is the Honeywell UtilityPRO™, a digital programmable thermostat designed specifically for demand response programs. This appealing technology is an ideal fit with the program because it addresses several market drivers, from both a customer and utility perspective.

Driving Customer Enrollment

For customers, UtilityPRO offers three enticing features to help drive enrollment:

Appealing upgrade - UtilityPRO builds on Honeywell's top-of-the line, award-winning programmable thermostat design and adds the latest demand response functionality. As a result, customers receive an enticing upgrade to their existing thermostat.

Modern and user-friendly - UtilityPRO excels where the load control devices that are typically used for demand response programs fail: it offers attractive consumer features and is easy to use. With UtilityPRO, homeowners get an effective thermostat with intuitive logic and menu-driven programming that helps maximize energy savings while maintaining comfort.

Honeywell's UtilityPRO™ digital programmable thermostat (photo courtesy of Honeywell)

The thermostat also offers top-of-the-line features like touchscreen interaction and a large, easy-to-read backlit display. In addition, it includes online programming capabilities so users can adjust settings via the Internet.

Precise In-Home Comfort - Designed and built to the highest quality standards, UtilityPRO accurately maintains in-home comfort with a fault tolerance of less than one degree Celsius. This feature, combined with its one-touch temperature control and programmable fan capabilities, mean customers can maintain in-home comfort confidently and precisely.

Maximizing Utility Control

For participating *peaksaver®* utilities, UtilityPRO helps bring the demand response concept to fruition by maximizing the built-in link to customers and doing more than just cycle air conditioners on and off. These features include:

Communication with customers - UtilityPRO helps improve customer service by allowing peaksaver utilities to send customized text messages through the thermostat - an industry first. Specifically, customers can receive relevant information like weather forecasts, energy-saving tips and updates on other conservation programs. UtilityPRO can also provide customers with billing data, including current rates, month-to-date charges and year-over-year comparisons.

Multiple communication modules - UtilityPRO is currently capable of accommodating multiple communications protocols based on participating utility preferences and needs, which makes it versatile and appealing to a wide spectrum of utilities. For example, UtilityPRO currently accommodates a 900 MHz paging system and a 154 VHF paging system.

Smart, future-proof technology - UtilityPRO is based in an open communications framework to keep pace with evolving utility needs,

Ontario's Local Distribution Companies Demand Response Success

Peter Black

including the pending rise of the smart grid, and serves as a sound, future-proof technology investment. Soon, the thermostat will be equipped with two-way communications capabilities to leverage advanced metering infrastructure (AMI) networks through open communications protocols, including ZigBee.

With these advanced capabilities, UtilityPRO will offer real-time insight for utilities into energy use at the household level and improved demand response control. The thermostat will also support critical peak pricing by displaying the pricing tiers set by the utilities. With these capabilities, UtilityPRO serves as an effective in-home display, enabling utilities to provide customers with the information needed to regulate their comfort and energy costs.

Ongoing Evolution

With its current capabilities and future promise, UtilityPRO appeals to more people and can accommodate more systems and requirements than other technology devices. As a result, the thermostat is poised to help peaksaver utilities continue to drive enrollment and ultimately provide the control necessary to manage peak electricity usage and stabilize costs across Ontario.

Peter Black is sales leader of Demand and Energy Solutions for Honeywell Utility Solutions Canada, which designs and implements demand response programs for utilities. The business has installed more than 950,000 load control devices to date, which makes it the largest implementer of residential demand response in North America. It also provides smart metering, and energy conservation and marketing solutions to utilities. Mr. Black's responsibilities include helping drive Honeywell's demand response efforts in Ontario, including the peaksaver® program. **www.honeywell.com/utility**

energymad

The Inaccuracies of

The sale of inefficient incandescent light bulbs will be banned in Canada in 2012. Ongoing province-wide efforts to encourage consumers to replace their old incandescent bulbs are having an impact, and Ontario's 4.5 million households are increasingly installing more Compact Fluorescent Lamps (CFLs) in their homes. Through coupon programs and CFL give-aways, electricity distribution companies in cooperation with the Ontario Power Authority (OPA) have been successful in both educating and encouraging consumers to replace old bulbs with new energy efficient CFLs.

CFLs are touted as one of the most cost effective and easiest ways to reduce energy usage. Unfortunately, standard CFLs have hidden costs that are not being properly quantified. It is widely believed that a 77% reduction in energy usage can be achieved by replacing a 100 watt incandescent bulb with a 23 watt CFL. In fact, this is not necessarily the case.

It has become increasingly clear that measuring CFL energy efficiency needs to go beyond the traditional measurement of watt savings. Other important factors must be considered - including the effect of the staggering increase in electrical devices with low power factor, and the resulting high harmonic distortion, that are adding significant costs to the system. Interestingly, high power factor (HPF) CFLs increase Volt-Amp savings by 60%, yet the vast majority of CFLs being installed have a low power factor.

We need to assess these costs in energy efficiency, beginning with power factor.

Why Power Factor?

The power factor of the majority of CFLs is extremely poor.

Power factor describes the efficient use of electricity of a device. Calculated by dividing the watts (W) of an electrical appliance by the Volt-Amps (VA) it draws, it will always equal 1 or less. The majority of CFLs sold in the Canadian market have a low-or nominal-power factor of approximately 0.55. HPF CFLs in contrast have a power factor greater than 0.9 (CSA definition), which creates significant savings. For example, the calculation for a standard 23W CFL may look like this: 23W / 42VA = 0.55PF.

The utility has to supply 42VA of electricity to power the 23W CFL. The unused 19VA is known as reactive power, and cannot be used by an appliance. Not only does the utility need to produce or purchase the additional 19VA of reactive power that it cannot charge for, it also needs to ensure that it has adequate infrastructure in place to distribute this power.

Total Harmonic Distortion (THD)

The low power factor of standard CFLs results in significant Total Harmonic Distortion (THD). This can be as high as 130% on a CFL with a power factor of 0.55. High harmonics result in what is known as 'dirty power', and increases costs within the electricity system. Examples include increased line losses during distribution and reduced life of distribution components, such as transformers, due to the increased heat. The THD of HPF CFLs, in contrast, is approximately 30%.

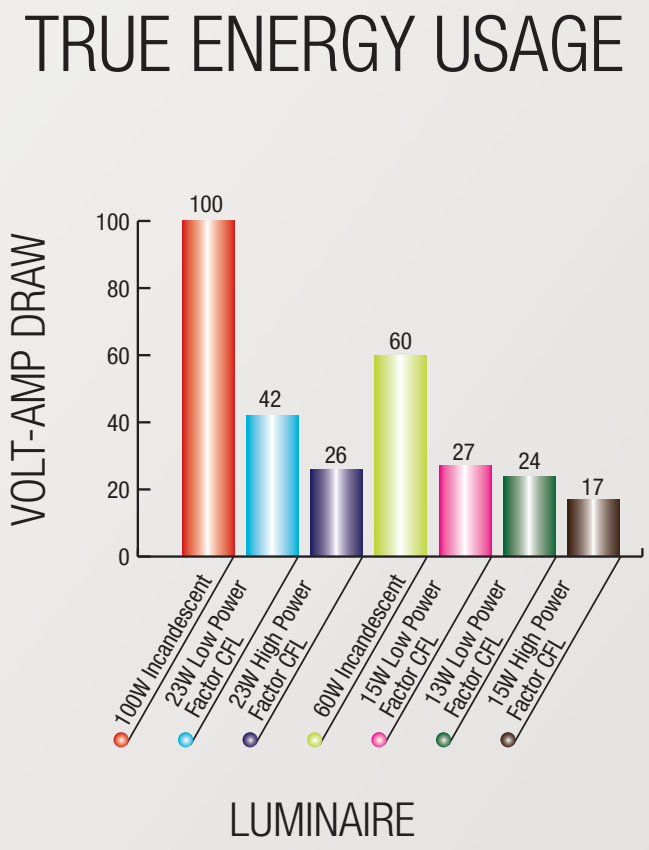
Given the fact that the uptake of CFLs is set to significantly increase, particularly with the sale of inefficient light bulbs likely to be eliminated by 2012, there will be a significant market shift.

Measuring Energy Efficiency in Watts

Alastair Patterson

The effects of low power factor CFLs won't be seen until it needs to be potentially corrected. There are cost effective solutions to these problems, but they need to be implemented now.

In 2007, according to provincial government statistics, approximately 87 million incandescent bulbs were being used in Ontario. Replacing all of the incandescents in Ontario with high power factor CFLs, peak load could be reduced by 2GVA and would save LDCs $2 billion in distribution system investment (supporting calculations and statistics are available by email from the author).



Solutions – An International Perspective

The simplest way to greatly reduce the hidden costs of low power factor CFLs is to promote the uptake of HPF CFLs.

In New Zealand the Electricity Commission, although recognizing the benefits of CFL use, realised that the hidden costs of low power factor CFLs could eliminate cost savings in the long-run, or even add to overall costs. As a result, the Electricity Commission offered a split subsidy on CFLs, with a higher subsidy paid on HPF CFLs. Energy Mad worked with the Electricity Commission, electricity utilities and retailers to utilise this subsidy in extremely effective campaigns for residential users. Today, half of all homes in New Zealand have 5 or more Energy Mad HPF CFLs installed.

Australian utilities are also beginning to invest in the better value proposition of HPF CFLs. In one example, a utility experienced brown-outs as the harmonics created by low power factor CFLs interfered with its ripple control system for Demand Control Programs. HPF CFLs have been seen as a way to overcome this issue. Other countries, such as India and Vietnam, are assessing making HPF a requirement for CFLs sold there.

Earlier this month Energy Mad sponsored a seminar in Toronto on power quality which provided further information on this issue. The keynote speaker was industry expert Roy Hemmingway, former Chairman of the New Zealand Electricity Commission. To get more information about this seminar, HPF CFLs and Energy Mad solutions, contact Alastair Patterson at ***alastair.patterson@energymad.co.nz***

Aztech In-Home Display Provides Innovative Tool to

In-Home Displays are a recent development for electricity consumers. All Ontario electricity consumers will need them as a result of a decision by the Provincial government to introduce variable energy pricing in Ontario to encourage conservation. The problem is "How can the consumer tell what the price is right now" when the price can change within different periods of a day? The answer is to provide them with an In-Home Display of energy use and cost that shows the same information as the meter attached to the house plus additional information on current costs to help the consumer control both their use of energy and expense of it.

Generating costs have always varied by the time energy is used and were traditionally averaged together into fixed rates. Cost varied because generating stations are only fired up as needed and each generator has a different cost profile. But the costs between relatively low cost coal fired generating stations and higher cost natural gas or oil fired generators is now exaggerated by the increasing differences in fuel costs.

In addition, Ontario's generating capacity has not kept up with its growth in population. So when the province must buy power from neighboring provinces it must do so in competition with US states who are willing to pay high rates. The bottom line for Ontario consumers is that prices for electricity are likely to become ever more volatile in the future and controlling the cost of the utility bill for budget minded consumers will require managing family energy use much more carefully.

Several types of In-Home Displays have been trialed over the last four years in Ontario. The earliest devices were attached to the meters and had no way to communicate with the utility company. With the introduction of Critical Peak Pricing the In-Home Display must now be in constant contact with the utility so warning messages about critical peaks or other situations affecting consumers such as storm related outage warnings can be delivered reliably. The Aztech In-Home Display is battery backed-up and is even able to display a message from the utility from the "last gasp" message sent to it by the meter when power delivery has been interrupted.

In some cases the In-Home Display may ask a consumer to acknowledge they have read the message or give the consumer the option to "opt out" of a program to offload an air conditioner etc. In-Home Displays must be able now to do all this and more in the future.

The Aztech In-Home Display placed in a high traffic area like the kitchen constantly displays information about cost and use . In critical peaks the display will show messages directly from the utility to the consumer alerting them by flashing lights and a muted beeping sound that their costs have just gone up and if a program exists that offers them an opportunity to lower their bill.

In some cases the In-Home Display may be asked to communicate with smart appliances and thermostats to trigger cost saving settings. The Aztech In-Home display can interact with existing or new appliances and thermostats from many manufacturers using a new radio control protocol called ZigBee which is rapidly becoming a part of the new Home Area Network or "HAN." By becoming part of the HAN the Aztech In-Home display can offer consumers control over their choice of appliances, thermostats and other home devices that may depend on signals coming from the meter directly over ZigBee or from the Aztech In-Home Display acting as a gateway into the home from the meter.

A frequently asked question is "can the Aztech In-Home Display attach to the home computer?" Yes, the Aztech In-Home Display comes with a USB cable to attach it to your home computer where a variety of programs are available to analyze energy use and offer the consumer choices.

Aztech has paid close attention to creating easy-to-understand display screens and new screen upgrades will be made available as new features are introduced. The Aztech In-Home Display has the ability to receive updates over-the-air from the utility directly and the consumer can also register at the Aztech web portal to receive updates over the web.

Monitor Electricity Use and Cost

. . . continued from front cover

Aztech IHD's are currently in use in the Ontario service areas of Hydro One, Toronto Hydro and Kingston Utilities. Trials of the Aztech IHD are currently underway in several US states and Quebec. Additional Aztech IHD trials are planned by more Canadian and American utilities later this year and next.

Formed in Kingston, Ontario in 1993, Aztech achieved international acclaim after developing a remote tracking system which allowed clients in industry to monitor the precise state and location of railway cars. Aztech then expanded the system for the oil and gas and shipping industry to monitor such things as the temperature of refrigerated cargo containers, the course and speed of ships, and the amount of fuel in an individual truck. Several years ago Aztech began to specialize in the design of energy-conserving equipment for the home. Aztech's portable and attractive In-Home Display device is the first of its kind approved by most meter manufacturing companies. As a result Aztech devices are capable of communicating directly with an ever-increasing number of smart meters. With its light pattern feature and LCD screen, homeowners can view their electricity usage and cost at a glance. This empowers families to choose the best time to run energy-guzzling appliances, thus saving money and helping to protect the environment.

Gardner McBride is VP Business Development at Aztech Associates. for more information: **www.aztechinc.com**

Creating Revenue from Essex

Kristopher Taylor

In the aftermath of the August 2003 blackout, Essex Energy Corporation partnered together with GenSet Resource Management (Genset) to create an Aggregated Distributed Generation (ADG) program; this program allows participants (host facilities that have existing standby generation potential) to smoothly and seamlessly export power back into the grid during times of constraint using clean, cost-saving technologies. In essence, for the specified period of time, the host facility transitions from energy consumer to energy provider and is thereby able to realize a profit.

GenSet is a registered Market Participant with the IESO; this turnkey program fulfills all aspects of the interconnection process, including licensing, municipal approvals, Connection Impact Assessments, facility registration, etc. GenSet also provides the technology packages, regardless of whether an existing site is being retrofitted or plans for a new Greenfield site are in the works.

Generator owners are typically mandated by the CSA to test run their generators on a routine monthly basis, which in most cases accumulates to about 14 exercising hours per year; this can be both time-consuming and costly. The GenSet program eliminates the need for host sites to test and maintain their assets, as it typically calls on hosts to run approximately 200 hours per year. Not only does this alleviate all exercising costs that the host incurs, it actually replaces them with a new revenue stream. GenSet also provides 24/7 monitoring and assistance for maintenance or trouble calls, resulting in a hassle-free experience for the host. Furthermore, all maintenance costs are built into the settlement structure of the program, and fuel is fully rebated back to the customer.

As members of the Aggregated Distributed Generation pool, host sites are bid strategically based on several market factors to optimize revenue within both the IESO's Operating Reserve market (Revenue for being available for dispatch) and Energy market (Revenue from actual generated kWh).

GenSet is the only group in Ontario that is engaging in the aggregation of embedded distributed generation for the purpose of participating in the Wholesale Electricity Market. "We've been operating for close to three years now, and have had enormous success with the GenSet program," says Kristopher Taylor, Conservation & Special Projects Manager for Essex Energy. "We're committed to moving forward and building on the momentum that we've achieved so far. Opportunities for distributed generation are everywhere - it's really up to innovative minds to determine how these opportunities are realized." The GenSet Aggregated generation pool has close to 8 MWs committed to date, and has plans for even more in the future.

"We've been operating for close to three years now, and have had enormous success with the GenSet program," says Kristopher Taylor, Conservation & Special Projects Manager for Essex Energy.

Transmission and distribution constraints, have certainly forced the program to adapt over time. Working with involved entities like Hydro One Networks and the IESO has enabled the GenSet program to continue to move forward in a positive manner while continuing to encourage the accommodation for small-scale generation connection.

Standby Generators

Energy & GenSet are Leading the Way

To sum it all up, there are literally no drawbacks to the GenSet ADG Program. Not only does the host's generator power their business when the electrical grid goes down (which is the primary use of the unit to begin with), through this program hosts can protect the integrity of their local electricity system and achieve revenue at the same time.

Kristopher Taylor is Conservation and Special Projects Manager for Essex Energy. For more information: ***www.essexpower.ca.***

Huskie Tools 1st Ambassador

James Robison, Lineman, First Class
New Hampshire Electric Co-op
Bristol, New Hampshire

Being a lineman is tough work, it is a job that mixes bad weather, dangerous situations and long hours. For three decades, Huskie Tools has been creating precision hydraulic compression and cutting products to help linemen throughout the U.S. do their jobs safely and more efficiently while serving the electrical needs of their communities.

After three decades of being in business, you learn a lot about the industry—but this year we are setting out to learn more about the individuals behind our tools. Huskie Tools is proud to announce the our first-ever Huskie Tools Ambassador. Twenty-nine additional ambassadors will be chosen and announced by the end of January to take part in the Huskie Ambassador Program.

As a lineman, first class, at the New Hampshire Electric Co-op, James Robison has gained the respect of his fellow lineman for nearly 20 years and is known for his strong work ethic, commitment to his company and dedication to his community. This is why we chose James as our 1st Ambassador for 2008.

We're proud to be celebrating 30 years of working with lineman like James Robison and the many other industry professionals making a difference every day in communities nationwide.

30th Huskie Tools Anniversary

PRECISION HYDRAULIC COMPRESSION AND CUTTING TOOLS

Huskie TOOLS

HuskieTools.com

30 years of safety, service and customer satisfaction.

Ontario Regulation 22/04

AN UPDATE

Neil Sandford

Ontario's licensed electricity distributors have now been operating under Ont. Reg. 22/04 for over four years. They've had the experience of receiving three annual audits, submitting three Declarations of Compliance and participating in numerous due diligence inspections, by the Electrical Safety Authority (ESA). I believe that despite some initial apprehension, it has led to improved practices and a wide acceptance that it has been good for our industry.

The guidelines for the implementation of this regulation were developed within a series of working groups with primary input from knowledgeable Local Distribution Company (LDC) resources. Following the experience of the last four years, these guidelines are in the process of being reviewed and it's a credit to the quality of the initial documents that the revisions are relatively minor and mainly require only clarifications on items.

The first year audits identified the most common non-conformances as those associated with the processes for the Approval of Electrical Equipment and the requirements for Third Party attachments. Since then many distributors have worked hard to address these issues and have recognized the significant effort required to achieve an acceptable equipment approval process. The ESA Guideline for Third Party Attachments was a very useful document but some distributors and telecommunications companies took some time to recognize the requirement for full engineering design when adding telecommunications facilities to electrical distribution structures. A much better appreciation of this regulation requirement has now been achieved thanks to good cooperation between Ontario's electrical distribution and telecommunication industries.

The results of the third annual audits were recently summarized by Jenifer Robertson P.Eng. General Manager, Utility Regulations, Electrical Safety Authority. The good news indicated that the audit findings document ten distributors are fully compliant with sections 6, 7 and 8 of the regulation; in addition forty nine distributors had no non-compliances and only nominal items of needs improvement and observations.

The bad news recorded that seven distributors had an average of 4.4 non-compliances. Those distributors have a significant liability exposure. Being in non-compliance of a provincial public safety regulation is not a situation to be taken lightly and the exposure to potential litigation, in the event of a serious public safety incident, should not be underestimated. You can be assured that the Electrical Safety Authority will be taking decisive action to fast track compliance for these distributors as part of its obligations to the Ministry of Small Business and Consumer Services.

AESI has been providing advice and training, to many distributors, in all aspects of the regulation. Assistance in the development of approved Construction Verification Programs (CVP) and implementation training has been given to many distributor clients. Specific training on CVP requirements has also been presented to several telecommunications companies as they have come to appreciate their obligations and opportunities to meet inspection requirements.

At this time it would be useful for any distributor to review the status of its compliance and to consider the level of understanding by its current employees. Normal staff turn-over and the addition of new employees may have produced gaps in the knowledge and understanding of this regulation. Refresher training is a normal commitment in any health and safety program and should be no less where public safety is concerned.

Neil Sandford, P. Eng. is Vice President, Distribution Utility Services at AESI Acumen Engineered Solutions International Inc. For more information: **www.aesi-inc.com**.

Using Legal Counsel

Scott Stoll

In a recent decision (EB-2007-0697), the Ontario Energy Board (the "Board") addressed recovery of an LDC's regulatory costs. As a result of this decision, it is timely to consider legal costs incurred by LDCs in connection with proceedings before the Board and the optimal role for legal counsel in such proceedings. It is probably the case that legal counsel with extensive experience in regulatory proceedings can assist with most aspects of the process, but there certainly are areas where counsel's assistance tends to add greater value and be more cost-effective than others. In order to assess the appropriate role for lawyers in a regulatory proceeding, one approach is to look individually at the typical steps in the process.

The lawyer can provide valuable strategic and legal advice to help guide the activities of the LDC, its employees and rate consultant to efficiently prepare the evidence for the rate application. In developing the strategy for the application, counsel can provide advice on the concerns of ratepayers, intervenors and the Board which can then be used to determine the type of evidence that will be filed. This advice should not be costly or time consuming and will pay dividends throughout the proceeding. It will also reduce counsel's time later on in the process to review the pre-filed evidence and prepare witnesses.

The current rate application is the first exposure for most LDCs to a forward test year which has been the normal practice for the gas utilities for many years. The *Ontario Energy Board Act* states that the burden of proof is on the applicant. The LDC can't just rely on historical spending but must forecast and defend its planned activities and spending levels, which will be even more difficult given the turbulent economic times being experienced. The lawyer can identify the problematic elements of the application and work with the LDC to understand what evidence will be needed to support the application and refute the concerns of intervenors and ratepayers. With incentive regulation, this forward test year application essentially sets the revenue requirement for the next three years so it is crucial for the LDC to receive an adequate revenue requirement in the current decision. The evidence filed, or not filed, will go a long way to determining the success of the LDC.

The lawyer can identify the type of evidence required but a lawyer does not need to draft the evidence and it is most likely not cost effective to have a lawyer draft the evidence. The witness responsible for the evidence should prepare the evidence; a lawyer may review and comment to help the witness improve the written evidence, but the evidence should be "in the words of the witness." It is usually apparent when a lawyer has drafted a witness' evidence and the credibility of the witness and the evidence can suffer. Finally, using the lawyer to draft the evidence does not help train the witness or build capacity in the LDC for future applications.

Once the rate application is prepared but not filed, the LDC may chose to have the lawyer review the entire application or just the critical parts of the evidence. The extent of the review will depend upon the nature or contentiousness of the application and the experience of the LDC in preparing such applications. During the review, the lawyer can identify the likely interrogatories that will be posed by Board Staff and intervenors to determine if additional evidence should be prepared. This review can be done very efficiently where the lawyer has been involved in developing the strategy and planning of the application. This will save time, expense and difficulty later on in the proceeding.

The lawyer can provide valuable strategic and legal advice to help guide the activities of the LDC, its employees and rate consultant to efficiently prepare the evidence for the rate application.

Effectively for OEB Proceedings

Few LDCs or their employees have had to appear at the Board for a technical or settlement conference, or as witnesses in an oral hearing. The conferences should be used to eliminate certain issues from going to an oral hearing and to provide a better understanding of the issues that will go to hearing. The lawyer can develop questions and strategies to explore the positions of Board Staff and intervenors, eliminate concerns regarding the LDC's evidence and advise where settlement is prudent.

Our clients have found that a mock cross-examination is the most effective way to prepare for being a witness in an oral hearing. Our firm regularly conducts such sessions with our clients and given our years of experience in hearings at the OEB we can adopt the specific traits and tactics of the relevant intervenor to create a more realistic atmosphere for the cross-examination. If witnesses are to give evidence in a panel, the mock cross-examination should involve the entire panel as each individual needs to gain comfort with the evidence and the other witnesses.

At the conclusion of the hearing, it is the lawyer's task to present the argument-in-chief and the reply argument to the submissions of Board Staff and intervenors. A lawyer should make sure there are no unanswered questions and highlight the strengths of the application and the weakness of the intervenors' arguments. Essentially, the lawyer is providing a path for the regulator to follow to reach the conclusion that the rates requested are "just and reasonable." Where the lawyer has been involved throughout the process, preparing argument can be done quickly and without undue cost.

LDCs, ratepayers, intervenors and the Board are engaged in an ongoing dialogue and the rate application is but one very significant conversation. Each submission by the LDC has an element of advocacy and should reinforce the credibility of the evidence and set the proper tone for current and future proceedings with the Board. The role of counsel is to provide strategic and legal advice; help develop and present a compelling application, prepare witnesses and to advocate on behalf of the LDC.

Scott Stoll, P. Eng., LLB is a partner at the law firm Aird & Berlis LLP and advises LDCs on regulatory issues. This article is not intended and should not be construed as legal advice.

272 million kilowatt hours saved and growing

Since 2005, Hydro One's conservation and demand management programs have saved our customers 272 million kWhs, or enough electricity to take care of the electricity needs for 25,000 homes for a year.

Our CDM programs have allowed us to work in partnership with our customers to promote a conservation culture in Ontario and at the same time help our customers reduce their electricity costs. Our programs respond to our broad and diverse customer base and achieve measurable results.

About 1.1 million participants took advantage of one or more of Hydro One's 20 CDM initiatives and programs. This participation has resulted in a decrease of greenhouse gases of 178,000 tonnes. Over the five-year average life span of efficiency measures installed, the expected electrical savings are almost 1.5 billion kWh. That is equivalent to powering 120,000 homes for one year.

By giving our customers the tools they need to conserve electricity, we're supporting the Province's drive to build a conservation culture.

For more information about energy conservation programs and initiatives at Hydro One, visit **www.PowerSaver.ca**

hydro one

Partners in Powerful Communities

Workwear that Works

AGO Industries Inc. (AGO) has been developing and manufacturing a line of Hi-Visibility ARC/FR Safety Apparel for the electric utility industry for over 25 years. Today, AGO products are used by most EDA Member Companies in Ontario.

Every day, workers in the electric utility industry work in environments that may expose them to hazards that could cause severe or fatal burn injuries. In the event of a momentary electric arc, everyday non-flame resistant work clothes can ignite and continue to burn. Untreated fabrics can continue to burn until the fabric is totally consumed, and non-flame resistant synthetic fabrics can burn with melting and dripping causing severe contact burns to skin. The use of flame resistant clothing provides a level of thermal protection, and after the ignition source has been removed, flame resistant garments will self-extinguish. AGO manufactures a complete line of Hi-Visibility ARC/FR Safety Apparel to help protect workers in the utility industry from the hazards of electric arc flash while at the same time making them highly visible in their complex work environments.

AGO's state of the art manufacturing facility, located in London, Ontario, employs a highly skilled work force and uses the most efficient high-tech, computer assisted equipment and lean manufacturing principles resulting in superior product, quality and service. AGO Hi-Visibility ARC/FR Safety Apparel is built to meet ASTM F1506-02 Standard Performance Specifications, the requirements of Ontario OSHA Regulation 145/00 Sec. 69.1 Par (1)(4) which is governed by the Ontario Ministry of Labour (MOL) and the requirements of the Electrical Utilities Safety Association's (EUSA) Safety Rule under Section 113 for Personal Protective Equipment (PPE).

When it comes to safety, the brand of fabric matters. AGO has selected INDURA® Ultra Soft® as the fabric of choice to construct its standard line of Hi-Visibility ARC/FR Safety Apparel. Fabric is a critical factor in determining the amount of protection, comfort, durability and overall value. Many unproven and/or generic FR fabrics promote the fact that they "meet the standards," however they often exhibit quality problems including, but not limited to, inconsistent FR durability to laundering, poor shrinkage control, stiff feel, excessive color fading and UV degradation. INDURA® Ultra Soft® and INDURA® brand fabrics are guaranteed flame resistant for the life of the garment and have market proven performance over the last 20 years with millions of garments in service world wide. INDURA® Ultra Soft® fabrics are engineered to provide enhanced protection from electric arc exposures, the comfort and look of everyday work clothing and improved durability that leads to a greater value.

Are you protected?

The EDA Thanks its 2008 Commercial, Associate & Affiliate Members

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thank you

Allan Fyfe Equipment is building on their 60-year tradition as a preferred supplier of equipment to Ontario's electricity industry. (photos courtesy of Allan Fyfe)

60 Years of Providing Tools and Equipment to the Utility Market

Allan Fyfe Equipment is building on their 60-year tradition as a preferred supplier of equipment and tools to the industry

Allan Fyfe Equipment delivered its first insulated aerial devices to the utility market in 1958. Today, the small privately owned company is still selling equipment and specialized machinery to the industry as they celebrate an impressive 60 years in business in Ontario.

As would be expected, there have been many changes over the years to the products they supply to the utility sector. Improvements in efficiency and serviceability for their lines of hydraulic tools and aerial devices reflect a number of significant design and technology advancements.

A great deal of industry interest is currently focussed on aerial devices and their use in hybrid trucks. Allan Fyfe introduced electric drive aerial devices to local utilities as many as fifteen years ago. These early versions, still commercially available today, were much simpler and less expensive than some of the new generation of devices. Although fuel savings were the main selling feature of the electric drive aerial devices when they were first introduced into the market, the reduced environmental impact of using electric has become an important feature of the equipment.

Aerial devices are not the only specialized equipment Allan Fyfe offers. The company has supplied hydraulic tools since 1965 and has always prided itself in keeping abreast of improved work methods and advances in ergonomically-friendly tools.

In a recent initiative, Allan Fyfe teamed up with a large utility in the province and a major manufacturer to develop an improved, state-of-the-art hydraulic pruner to be used for line clearance. After prototyping five tools over a one-year period, over seventy second-generation tools have now been introduced into the field in Ontario. These tools are approximately 40% lighter than other tools available on the market. While the tools are still considered experimental, this exciting project has demonstrated that their use is helping to reduce lost time injuries and increasing productivity through reduced fatigue.

Allan Fyfe Equipment continues to supply a wide range of quality tools and equipment from reputable manufacturers to the distribution sector in Ontario. By offering a line of products that improve productivity and reduce utility worker injuries, Allan Fyfe Equipment is building on their 60-year tradition as a preferred supplier of equipment and tools to the industry. For more information: **www.allanfyfe.com.** ■

Why your electricians take

and

Men *work live* because of two not-so-simple reasons: supply and demand. I will share the drivers behind the supply and demand for men to *work live* and will suggest some strategies that you, as CEO, can put into place to eliminate the needless suffering and death that ensues when *working live* goes wrong.

Earlier this year, I completed my Masters thesis on the question of why men take risks by *working live* on energized electrical machinery or equipment. An important caveat applied: there have been no recorded fatalities of female electrical workers in Ontario in the past decade, so this was a gender-specific study (Ely & Meyerson, 2006). I also did not research men who work on high voltage lines, given that, in many situations, they are required to *work live*-with the proper safety back ups and PPE.

Electrical accidents (serious and life threatening) are up 40% over the past decade (Government of Ontario, Ministry of Labour, 2006), and it appears that many of these work-related electrical incidents befell non-electricians: those not extensively trained in electrical safety. This begs the question of why those untrained in electrical safety, who may be experts in their own craft, are allowed by law to work on electrical equipment?

There is a 100-year tradition and history of *working live*; men were trained that way, and, in turn, they trained their younger co-workers and apprentices in this terrible practice. The state of Western Australia has just outlawed *working live*, under almost all circumstances, and is moving forward. They should be commended for their far-sighted legislation. We in Canada do not offer that degree of worker protection-yet.

My thesis sponsor was the Electrical Safety Authority of Ontario, who was instrumental in many ways, especially in helping me to recruit participants for research into this *wicked problem*. This research was not a piece of dry academic work. Rather, as the ad agency for ESA, I focused my research on ESA's Spring 2008 Arc Flash Communications Campaign, which we were creating for ESA at the time, in an effort to determine how we could improve the emotional appeal of our advertising and, thus, increase recall. My research findings played a significant role in the final creative tone and manner of the campaign.

risks on the job, what can you as the CEO, do to change that?

Gavan Howe

Supply for *working live* is the men themselves, who acknowledge that they are risk-takers, macho, or complacent, and who state, "This is the way we have always done it," or more worrisome: "It will never happen to me!" *Demand* for *working live* is the client, supervisor, consulting engineer, other trades, general contractor, or receptionist who asks your men to *work live* on a piece of equipment-or it's a veteran, journeyman, or co-worker who takes a short cut and doesn't get hurt, while your new apprentice is watching and *learning* about electrical safety on-the-job.

Let's deal with supply first: there has never been a greater risk-taker created than the young male. This is especially so if these young males are of an extroverted personality type. Young men have the propensity to take risks and tolerate risks far more than older men or women. A potent stew of age, gender, personality, mood, environment, worldviews, goals, emotion, cognition, and behaviour all intersect to allow men to take risks or not.

Demand is the evil twin sister of the Supply. The drivers of this behaviour are numerous: the person asking the electrician to work live may not know what it is they are asking. Bill C45 will work to change that. Other responses include: "If I don't *work live*, they will ask someone else to do it," or "they wish to look good in the boss's eyes," or "to keep the power on for the client's office."

For electricians and electrical workers, risk-taking while on the job is a problem of dynamic complexity (Senge, 2006), not simple or linear complexity. Simple or linear complexity would allow the CEO to execute one change and voila: the problem is fixed! Unfortunately, with humans this is not so easy a task.

Paradoxically, many young workers who are allowed under the Occupational Health and Safety Act (1990) to work on electrical equipment (i.e., elevator repair, HVAC repair and install, millwrights, and those who repair plant machinery) may be at greater risk, not having the extensive electrical safety training electricians are exposed to.

The provincial statistics are incomplete at best. Currently, there exists a patchwork of record keeping of electrical incidents in the Province of Ontario, with no single organization or group keeping a comprehensive record of all incidents of death or injury by electrical contact, regardless of cause. Today we don't know what we don't know about the state of electrical injuries/deaths in this province. ESA is taking steps to rectify this condition by creating a new, comprehensive database of all electrical incidents occurring in the province, regardless of cause or location (i.e., work-related or not).

So how does the modern CEO change this wicked human problem of dynamic complexity? Not quickly and not easily; however, there are steps she/he could take, which starts with understanding that your workforce has vastly differing worldviews on safety. What is common sense to one man or woman may be totally different to another.

CEO's can ascertain these differences through the utilization of modern neuromarketing research into what makes your stakeholders tick and what they respond to, based on their differing worldviews. Keep accurate statistics and benchmark change. Communicate directly to your first responders and other high-risk workers. Communicate with different messages to your groups of young men and senior veterans, as these two groups represent the greatest risk takers, and the greatest influencers, of risk taking. Peer and supervisory influence play a vital role in learning safety, or not, while on the job.

Secondly, through temperament testing, you will begin to find out who the risk-takers are. This tool will also help you spot the odd thrill seeker. Though rare, the thrill seekers can be dangerous to themselves and their co-workers.

Today's leaders know that they, of all people, must lead the charge in worker safety. It really does start at the top. By using powerful research and communications tools, you can begin to change a culture of risk to a culture of safety. Go out and meet them where they are at; you may be surprised. ■

Gavan Howe is the president of Howe Brand communications and its online division EBRANDERS. For more information: ***www.ebranders.com.***

EDA Commercial Member Steering Committee 2008

The Commercial Member Steering Committee develops and establishes protocols that will ensure the membership success of commercial member services with the EDA. Selected from volunteers, the Steering Committee representatives reflect a broad cross section of commercial members and geographical representation. Each member of the Commercial Member Steering Committee serves a term of 1 year with the exception of the Chair and Vice Chair who serve for a 2-year term.

David Windley, Chair
WINTEK Engineering Ltd.

Neil Sandford, Vice Chair
AESI Acumen Engineered Solutions

Bob Mason
Bob Mason & Associates

Paula Zarnett
BDR NorthAmerica Inc.

Bart Burman
EnerSpectrum Group

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George Kelly
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EMT - the Energy Management Tool is a web-based software that allows Ontario municipalities to benchmark and compare facility performance, measure and verify savings from energy conservation projects, reduce operational costs and improve processes, and meet corporate environmental stewardship goals including greenhouse gas (GHG) reductions.

Audit Energy Savings...

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