



Ontario
Hotbed for
innovation



Building automation
Revamping consumer
engagement

MEDIA
PLANET

June 2012

SMART GRIDS

3
FACTS
ABOUT
SMART GRIDS

THE LANDSCAPE OF OUR ENERGY FUTURE

How **Smart Grid technology** will revolutionize
the way we look at **electricity**

CHALLENGES



1

SMART GRID INFRASTRUCTURE IS FORECASTED TO ATTRACT \$200 BILLION IN WORLDWIDE INVESTMENT IN THE NEXT FIVE YEARS

PHOTO: SXC.HU

Smart Grids will completely revolutionize the way we interact with energy. **Canada has the opportunity to become an energy superpower.**

Advancements in Smart Grid technology are vital for increased efficiency, sustainability and resilience of our electricity sector.

Shedding light on Smart Grids

Why pay more for an electricity grid to be “smart”? Because Smart Grids are fundamental enablers that yield cleaner, more efficient, and more secure electricity—they are quite simply an integral technology and a key investment in the current and future energy system. With massive electrification set to mark the transition to a low-carbon economy, intelligently managing all power sources and end-uses is critical. Since the International Energy Agency began its study of Smart Grids several years ago, we have seen both the technology and the debate in this area mature significantly—all over a relatively short time. The IEA has played an important role in that process, strengthening the development and progress of Smart Grids themselves.

So what are Smart Grids?

In the most basic definition, a Smart Grid is a system that intelligently manages all sources and end-uses of electricity. By deploying information technology into the electricity system—at the generation sources, during transmission and distribution, and with end users—the system can be operated more efficiently

and optimally to ensure a secure, economic and clean supply of electricity.

Why do we need them?

Several drivers converge to necessitate their deployment. First, electricity demand is growing and also changing. Growth will occur in the context of aging infrastructure and also new demands, such as electricity for transportation through electric vehicles, and increased heating and cooling applications. These new applications have the potential to stress existing infrastructure, posing particular problems where peak demand issues already exist. Second, customers are more aware of electricity prices and increasingly concerned with price hikes. That is especially the case where they do not have the tools to monitor or manage electricity consumption. Finally, on the generation side we see increased deployment of variable renewables—such as wind and solar. These technologies produce clean electricity, but only when the wind is blowing or the sun is shining, and not necessarily near demand centres. The limits of existing infrastructure to cope with increased variability constrain the overall penetration of renewable technologies.

Given these realities, IEA study of Smart Grids by Technology Policy Analyst David Elzinga (Canada) was timely, with poignant conclusions.



Maria Van Der Hoeven
IEA Executive Director

FACT

The IEA's Energy Technology Perspectives 2012 publication, released in June, estimates:

■ Over the next 40 years, global electricity demand will grow between 84 percent and 120 percent.

■ In developed economies like Canada, growth is estimated at between 25 percent and 40 percent.

Benefits outweigh costs

IEA analysis of Smart Grids' deployment to 2050 shows that the benefits outweigh investment cost. Smart Grids enabled cost reductions in generation, transmission and distribution, in retail operations and in the overall system (including savings to customers)—but not necessarily in the same sectors in which investments were made. Regulations and business cases are needed to help resolve this conflict, which at present is a significant barrier to broad-scale use of smart-grid technology.

Collaboration is KEY to systemic change

Policies that encourage greater sharing of risk, costs and benefits can stimulate the development of innovative and improved electricity systems. Achieving a low-carbon economy requires a transition from the existing electricity system, in which generation follows demand, to one that optimises the use of all system-operational resources available. Although the maturity of technologies may vary, targeted investment is needed to determine the most cost-effective options for both the short and long terms.

Society is dependent on electricity, and that dependency is expected to increase in the future as utilisation grows dramatically. Addressing necessary systemic change to support those developments is imperative, and each region must determine the right technical and regulatory solutions appropriate to its unique situation. But some challenges are more universal, such as communicating with customers to ensure widespread support for needed investments and recognition of electricity's fundamental position in our modern lives. There is clearly opportunity for cooperation and collaboration.

MARIA VAN DER HOEVEN,
IEA EXECUTIVE DIRECTOR
editorial@mediaplanet.com

Repowering Ontario: Canada's innovation hotbed

Building a Smart Grid is a key part of the government's plan to revitalize Ontario's electricity system, clean up the air we breathe by shutting down coal-fired power and ensure a reliable electricity system to power Ontario's economy.

Over the last nine years we have made great progress. We are modernizing and rebuilding our province's energy infrastructure and increasing our supply of clean energy. Since 2003, Ontario has brought more than 9,000 megawatts of new and refurbished clean energy online. That's enough electricity to power both Ottawa and Toronto.

An important part of the modernization of Ontario's infrastructure is replacing out-dated technology with a smarter electricity grid. This modernization is like going from the rotary phone to the smart phone.

Ontario is the first jurisdiction in North America to roll-out smart

meters to every home and business. More than 4.7 million smart meters are helping Ontario's electric utilities pinpoint and respond more quickly to power outages, while helping Ontarians better control their energy usage and manage costs.

Smart Grid technology improves customer service, operation and flexibility in the electricity system. A smarter grid will also bring system-wide benefits, like lower greenhouse gas emissions, by making it easier to connect energy from renewable sources to the grid.

Ontario's Clean Energy Economic Development Strategy will leverage the province's clean energy experience to become a global leader in key areas of the energy sector like smart meters and the Smart Grid, including grid automation, data management and consumer-facing ways to engage Ontarians in their energy usage.

Ontario is already home to a number of companies that are advancing innovative Smart Grid technologies.

Electrovaya is emerging as a world leader in lithium-ion battery manufacturing. We also have companies like Ecobee, Energate and Powerwatch, which are creating products that will give consumers more control over their energy usage.

Recently, some of the province's leading manufacturers in the Smart

Grid space gathered at MaRS in Toronto to discuss energy generation and the global transformation taking place in the clean energy sector. This forum allowed local innovators to learn from and network with leading global specialists in Smart Grid technology.

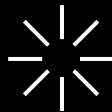
Over the next five years, our province will support Ontario-based, leading edge Smart Grid projects to help companies and organizations design, test and commercialize the next generation of Smart Grid solutions and create Ontario jobs.

This is an exciting time for Ontario as we stand at the forefront of a new era of smart technology. Our efforts to build a smarter grid and a clean energy economy will ensure that we have the electricity we need to power our homes, schools, hospitals and our economy. The end result will be cleaner air, a stronger economy and a better future for our children and grandchildren.



Hon. Christopher Bentley,
Ontario Minister Of Energy

HONORABLE CHRISTOPHER BENTLEY,
ONTARIO MINISTER OF ENERGY
editorial@mediaplanet.com



WE RECOMMEND



PAGE 07

Addressing the Labour Shortage in The Electrical Sector
Dr. Jonathan Beddoes

“At the University of Manitoba, we are investing millions of dollars in the next couple of years to develop the research and training facilities associated with innovative electrical engineering power technologies,”

Dr. Jonathan Beddoes

Building automation p. 4
Changing the way we energize buildings

Panel of experts p. 6
How Smart Grid technology will help Canada

MEDIA PLANET

SMART GRIDS
FIRST EDITION, JUNE, 2012

Responsible for this issue:

Publisher: Miguel Van Den Oever
miguel.vdo@mediaplanet.com

Designer: Elizabeth Gotham

Managing Director: Chris Vassallo
chris.vassallo@mediaplanet.com

Production Coordinator:

Tyra Bouhamdan
tyra.bouhamdan@mediaplanet.com

Business Developer: Chris Vassallo
chris.vassallo@mediaplanet.com

Contributors: Jonathan Beddoes, Hon. Christopher Bentley, Brian Bentz, Andrea Berry, Jim Burpee, Pedro Cabezuelo, Ann Cavoukian, Liuchen Chang, Mike Evans, Tracy Forest, Tanya Gallus, Rafik Goubran, Martine Holmsen, Rick Huijbregts, Don MacKinnon, Richard Marceau, Paul Murphy, George Nutter, Magdy Salama, Maria van der Hoeven, Samara Wiseman

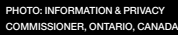
Cover Photo Credit: istockphoto.com

Distributed within:
National Post, JUNE 2012
This section was created by Mediaplanet and did not involve the National Post or its Editorial Departments.



FOLLOW US ON FACEBOOK AND TWITTER!
www.facebook.com/MediaplanetCA
www.twitter.com/MediaplanetCA

Mediaplanet's business is to create new customers for our advertisers by providing readers with high quality editorial content that motivates them to act.



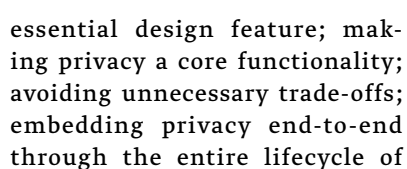
“Very real privacy concerns arise where there is a possibility of revealing the lifestyle habits and behaviours of energy consumers”

The assurance of privacy must become embedded in an organization's operations; otherwise we will risk the violation of our most basic rights.

Energy conservation and
privacy: we can have both...
here in Ontario, and around
the world

With the introduction of automated “smart meters,” information about specific electric devices in a customer’s home will be able to reveal not only the amount of electricity used, but also, when and how long a particular device is used. Very real privacy concerns arise where there is a possibility of revealing the lifestyle habits and behaviours of energy consumers.

Our work with San Diego Gas & Electric (California's SDG&E, part of Sempra Energy, a Fortune 500 firm) began when they asked for our assistance in applying the Privacy by Design (PbD) approach to their Smart Grid initiative, which provides a cost-effective and privacy-respectful customized energy solution for customers by using a management tool that displays their energy usage. This was accomplished by examining the 7 Foundational Principles of PbD, which involves embedding privacy into Smart Grid designs, right from the outset; ensuring that privacy is embedded as the default; making privacy an



personal information collected; being open and transparent to customers; and most importantly, instilling a culture of respect for customer privacy.

It is clear that both privacy and energy conservation, or any other functionality, can co-exist, in a doubly-enabling positive strategy. The key is to proactively embed privacy into emerging ventures, thereby ensuring the future of privacy, by Design.

editorial@mediaplanet.com

INSPIRATION

2

SMART GRID
ENABLED
DISTRIBUTION
CAN REDUCE
OUR CARBON
DIOXIDE
EMISSIONS
BY UP TO
25 PERCENT**Question:** How can Smart Grids and home automation contribute to a more sustainable lifestyle?**Answer:** By helping us re-evaluate the way we manage and deploy our energy resources.

Greater energy sustainability through Smart Grids and home automation

A CHANGE OF FOCUS

Sustainability is becoming an important word in the vocabulary of many Canadians, especially as it relates to growing energy consumption. Whether you're a business or institution looking to increase energy efficiency or an average homeowner trying to reduce heating costs, there is increasing focus on re-evaluating the way we manage and deploy our energy resources.

Demand for innovation

One of the main challenges that have become evident is the growing inefficiency of our existing electrical power grids, many of which have been in use for nearly a century. As population and energy usage increase, traditional power grids are having a harder time reliably managing demand loads, potentially leading to costly blackouts and dramatic power outages. In addition, environmental pressures to conserve energy have led to the real-

ization that utility companies must make significant upgrades to essential infrastructure.

The need to overhaul electrical grid systems to meet these growing demands has served as the catalyst for what is known today as "Smart Grid" technology. At the core of this technology is the ability to collect valuable data and anticipate the changing patterns in energy generation, distribution and consumption. There is much innovation and improvement to be expected in all equations of the energy food chain, and what we are seeing are increasing strides with regards to consumption and demand. Data can be collected by and generated from building performance both commercial and residential. These data, which can be collected and shared over an Internet Protocol-based network, can be used to monitor, control, and reduce the needs of energy consumption on the demand side and consequently have a tremendous impact on grid innovation.



Rick Huijbregts
Vice President
Smart + Connected
Communities,
Cisco Canada

↓ FACT

- **Building and home automation** will improve the ease-of-use and the end-user experience.
- **It simplifies management** and increases operational efficiency by reducing energy consumption and operating cost.
- **Smart + Connected Communities** are a partnership of private and public sectors who work together to create and deliver new services and experience over intelligent community networks that promote economic, social and environmental sustainability.

The benefits of a sustainable lifestyle

For homeowners or tenants striving to find new ways to decrease energy consumption, networked

buildings and home automation are making sustainability a part of everyday life. Usually, when one hears the term smart building or home automation, the first thing that comes to mind is convenience. For example, we have the ability to use a smart phone or tablet to control the lighting or the blinds, door locks and security or even the television.

While it's true that smart buildings can offer consumers unheard-of levels of convenience, the real value comes from the ability of these automated systems to closely monitor performance and energy and manage these accordingly. In this way, not only will room temperature and lighting levels be kept at an optimal level, but even the air quality in the home can see improvement. Energy is used more efficiently, with less waste, reducing footprints and utility costs.

This enhanced user experience, productivity and efficiency is the key to smart buildings, and, by extension, smart and connected communities,

which are quickly springing up throughout Canada. Rampart's Avenir Communities in St. Albert, Alberta, which will soon be home to 10,000 new residents, is one of the latest and is set to become a blueprint for 21st century community development in Canada and throughout the world.

And again the benefits are numerous. Along with increased sustainability, connected communities are also expected to generate new business opportunities within the private and public sectors, and enhanced health, education and community services.

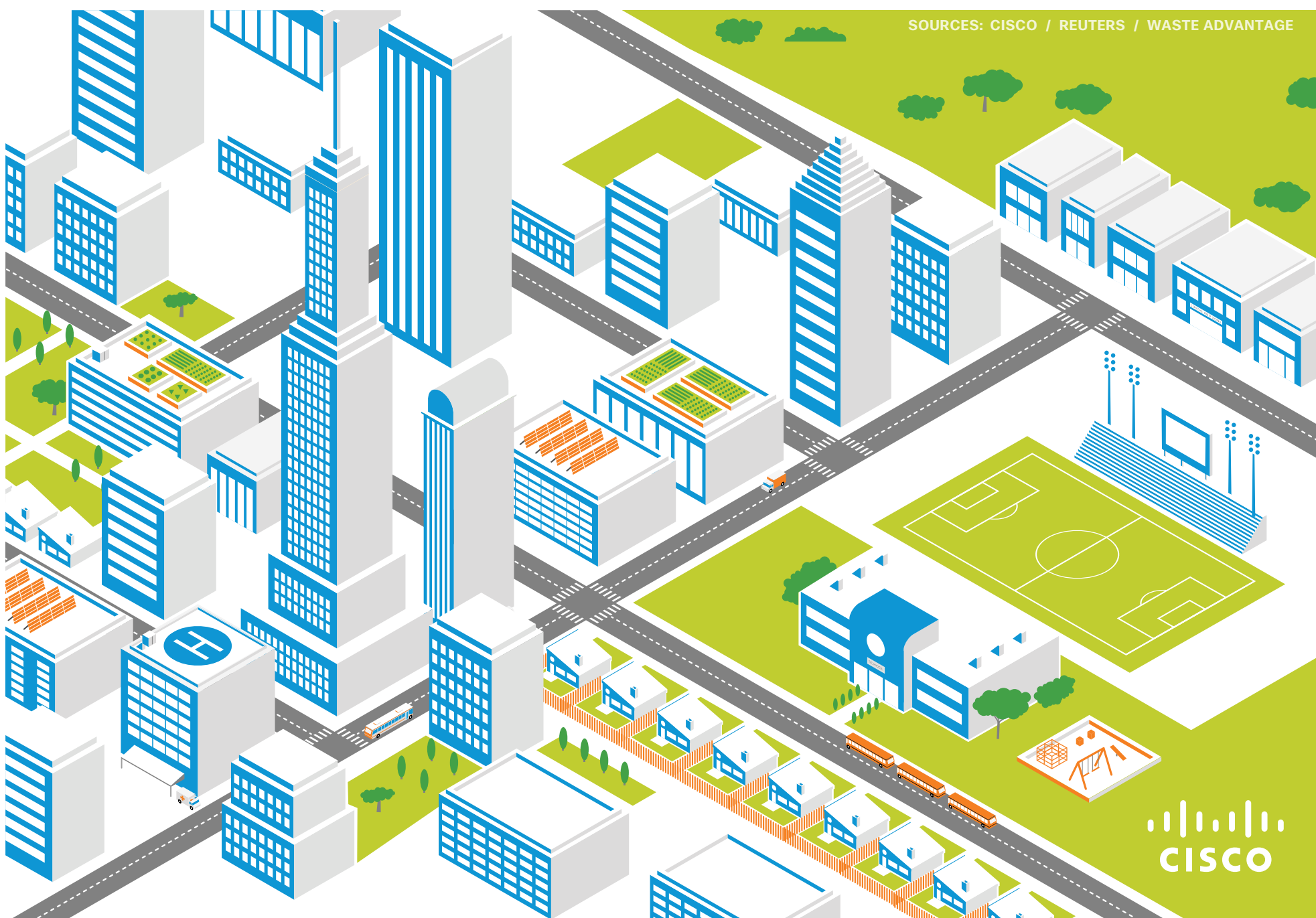
It's a model with vast potential for every Canadian, equally applicable to business or the home. Technologies such as Smart Grids and home automation, along with further innovation still to come, offer the potential to improve economic, social, and environmental sustainability and in turn, quality of life.

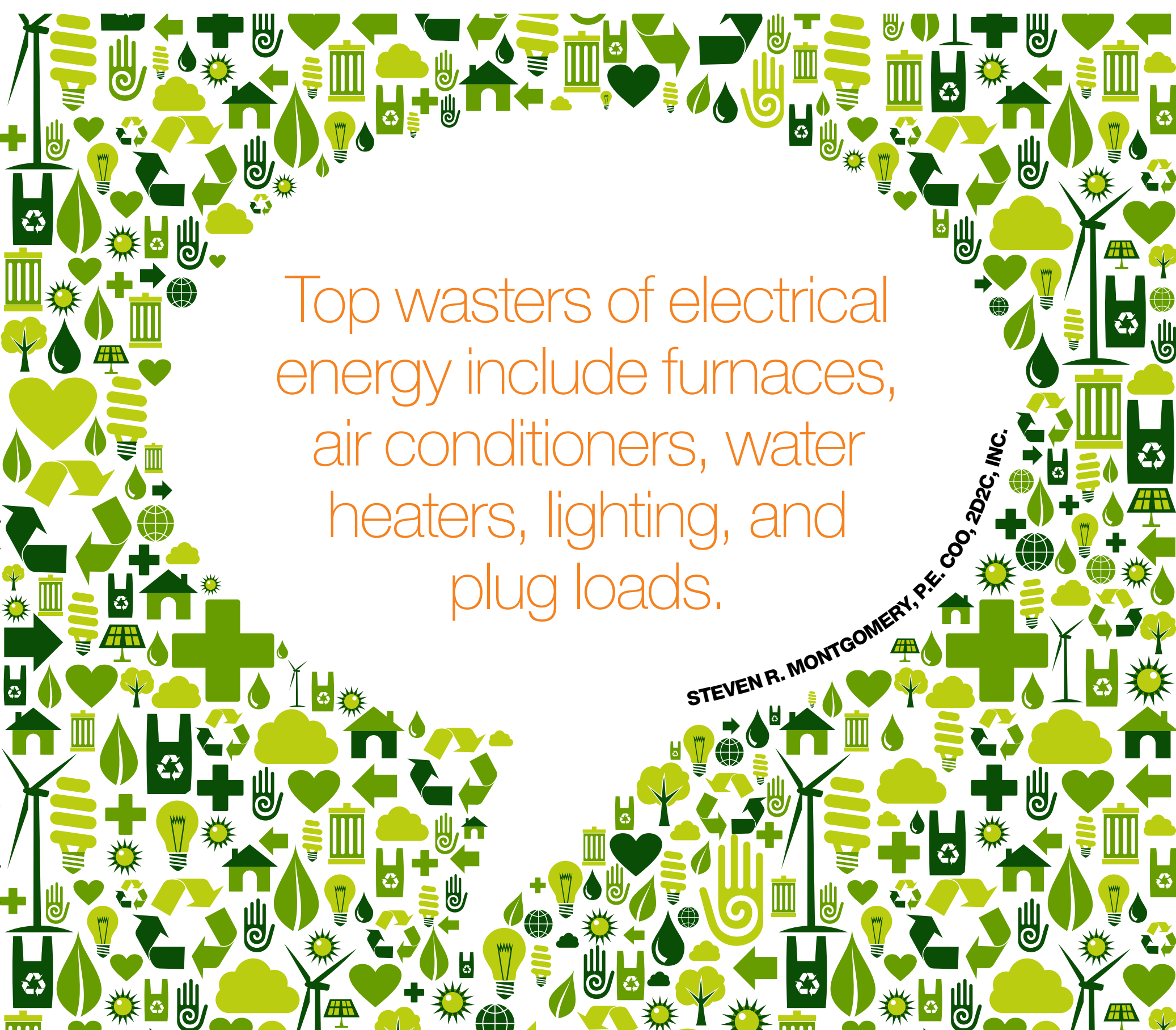
RICK HUIJBREGTS,
VICE PRESIDENT,
SMART + CONNECTED COMMUNITIES,
CISCO CANADA
editorial@mediaplanet.com

THE CITY OF
THE FUTURE:
SMART AND CONNECTED

According to ABI Research, \$39.5 billion is projected to be spent on smart city technologies in 2016. From public transportation to shopping, the city of the future has the potential to significantly transform urban living—and might be closer than we think.

SOURCES: CISCO / REUTERS / WASTE ADVANTAGE









Top wasters of electrical energy include furnaces, air conditioners, water heaters, lighting, and plug loads.

“From Tokyo to Toronto, from the remotest outpost to the crowded urban core, the promise of a smarter electric grid is seizing the imagination of users and managers of transmission and distribution systems. Not since the grid was first built has there been so much interest and attention paid to what it might do and how it should operate”

THE ASSOCIATION OF POWER PRODUCERS OF ONTARIO


PANEL OF EXPERTS

	Question 1: What will a smarter grid do for the everyday consumer?	Question 2: How can the Smart Grid industry re-energize the Canadian Economy?	Question 3: How will the shortage of electrical engineers affect the future development of Smart Grid technology?
 <div>Jim Burpee President and Chief Executive Officer Canadian Electricity Association</div>	The Smart Grid provides a response to a very important question: how will we, as a society, bring together the elements required to ensure that our energy use is sustainable for future generations? It allows for new grid-based applications such as electric vehicles, distributed generation and real-time energy usage monitoring. The Smart Grid will also make the existing power grid more consumer-friendly: it gives customers the knowledge and tools to take charge of their power usage and bills.	Domestic Smart Grid suppliers are the experts who best understand the current infrastructure, the regional policy drivers, and the evolving customer expectations—three key elements that determine the value of Smart Grid investments. It's important to keep in mind that the Smart Grid is really the continued maturation of an electricity network already on a steady path to automation.	According to the Electricity Sector Council's 2011 Labour Market Information Study , baby boomers comprise 36 per cent of the existing electricity sector workforce, and over 18,000 of these individuals are expected to retire by 2016. Transitioning effectively to a new workforce will require a combination of knowledge retention, training, development programs, succession planning and focused recruitment/retention programs. We must invest in education, streamline certification and credential recognition, and attract and retain foreign workers in order to maintain Canada's safe, secure, reliable and sustainable electricity supply.
 <div>Paul Murphy President and Chief Executive Officer Independent Electricity System Operator</div>	For one, a smarter grid will shorten and reduce the number of power interruptions. It will also give you more information about your electricity, give you more options to use it efficiently and even help you take advantage of new ways to use electricity, such as electric cars.	As part of the Ontario Smart Grid Forum , we have seen the potential of Smart Grid capabilities to strengthen the economy. They can provide businesses and industry with an improved electrical service, increasing reliability and power quality. Ontario's leadership in Smart Grids is also creating economic development and trade opportunities—with local businesses innovating and offering this expertise around the world.	Our industry is undergoing a transformation in its workforce as experienced engineers and technical staff retire. Most utilities are actively working with universities and colleges to attract and train new professional staff. With Smart Grids, this need is accentuated. Utilities are looking for a much broader range of skills than ever before. Not only do we need electrical engineers; we also need highly skilled software engineers, data analysts, technicians and a broadly-skilled workforce capable of understanding both the technological and commercial forces of change that Smart Grids bring together.
 <div>Richard J. Marceau Provost and Vice President, Academic UOIT</div>	A Smart Grid offers electricity consumers more choices: purchasing power from low-carbon or high-carbon sources, and from different jurisdictions, at different rates and different times of the day. Electricity suppliers will also have choices such as: not supplying electricity to certain types of loads at certain times of the day, in return for lower rates at other times of the day; offering electricity from a variety of sources, including high-carbon sources, and offering electricity from different jurisdictions, at different prices.	A National Smart Grid project re-energizes the Canadian economy on various levels. The construction of a National Smart Grid is a "Big Infrastructure Project". A large, federal-provincial, public-private partnership involving the research, design, manufacturing, construction and final assembly of a National Smart Grid will generate thousands of high quality, high value-added jobs in addition to construction jobs and activities over a minimum of two decades. Once Canada is the first nation to create and operate a continental power system, Canadians will have the opportunity to market this technology throughout the world.	Because of the existing and rapidly increasing shortage of electric power engineers in Canada and elsewhere, engineers who know how to design the power systems of the future are rare, and getting rarer. If no clear leadership emerges in Canada's electricity sector, the National Smart Grid could rapidly become "the most wonderful project that could have been" simply due to the lack of human capital.



THE EVOLUTION OF SMARTER ELECTRICITY

YESTERDAY
Mechanical Meter



TODAY
Smart Meter



TOMORROW
Smart Grid
Revolutionizing the way we use electricity



www.powerstream.ca

Connectivity is essential for advancements in energy infrastructure. How will industry leaders take us there and what does it mean for consumers?

The new front of Smart Grid innovation

Smart Grid technology is the key to creating an energy infrastructure that will carry Ontario well into the 21st century. Through our computers and smart phones, we can instantly access email, Facebook, Twitter, and a host of other social networking tools. No doubt, these tools have revolutionized the way we communicate with each other. Now, as energy producers, distributors and consumers contend with a century-old model for delivering electricity, PowerStream President and CEO Brian Bentz believes we need another social network—the social energy network.

Convenience for Consumers
In the past, energy producers and distributors have been forced to send operators out into the field to gather information about damaged and aging equipment. By investing in Smart Grid technology, which integrates communications technology into the traditional system, distributors like PowerStream can monitor and communicate with grid system components remotely and in real time. This allows them to better predict equipment failures and increase efficiency, which ultimately provides consumers of all kinds with a much more reliable grid and better value for their dollars.

In addition, the emerging Smart Grid communication network will allow electrical devices—from light



Brian Bentz
President and Chief Executive Officer
PowerStream Inc.

bulbs to air conditioners—to connect to internet-based software, allowing consumers to create settings that govern how their power will be consumed. PowerStream has also invested in a project that, remarkably, will allow consumers to use energy stored in electric car batteries to power devices in their homes.

Smart Grids are the way of the future, and leading edge utility companies are making it happen.

2003 BLACKOUT IN THE NORTHEAST U.S. AND CANADA CAUSED AN ESTIMATED \$7-10 BILLION IN ECONOMIC LOSSES. A SMARTER GRID COULD HAVE PREVENTED THIS



Labour shortage means opportunity for aspiring electrical engineers

■ Question: How can I learn economically desirable skills leading to impressive salaries and benefits while contributing to an environmentally sustainable energy infrastructure?

■ Answer: By enrolling in a cutting-edge electrical engineering program at one of Canada's top universities.

The baby-boomer mass retirement about to sweep across Canada could rightly be described as an event. While this is unlikely to come as news to anyone interested in labour trends, less known is the extent to which this event will affect the electrical industry. The Canadian Electricity Association's 2004 Canadian Electricity Human Resource Study tells us that 37 percent of the sector's 75,000-member workforce will be eligible for retirement by 2014. Moreover, universities are not currently producing enough new graduates to fill the shortfall. If left unchecked, this drought of skilled labour will result in delays to infrastructure projects, reduced grid reliability, and decreased productivity likely to lead to increased consumer costs.

Intensifying the problem is the fact that our electricity production and delivery system is undergoing what Jim Burpee, President and CEO of the Canadian Electricity Association, calls a "period of



"At the University of Manitoba, we are investing millions of dollars in the next couple of years to develop the research and training facilities associated with innovative electrical engineering power technologies,"

Jonathan Beddoes
Ph.D., P.Eng. Dean Of Engineering,
University Of Manitoba

transformation which will bring the necessary expansion, refurbishment and modernization of Canada's electricity system." This amounts to a technological overhaul as modern communications technology and sensing equipment is integrated into the aging and increasingly unreliable grid we have today. New Smart Grids will have some remarkable new features, including the ability to analyze grid disturbances, helping to predict and prevent future problems. They will also have a self-healing feature, allowing the grid to compensate for incapacitated distribution lines by automatically rerouting power down unaffected lines. These innovative plans will reduce both the amount of strain on the grid and the size of your electric bill. But if they are to come to fruition, something has got to be done about this labour shortage. Luckily, some of Canada's most

well-established post-secondary institutions are taking steps to ensure that we will have a sufficient number of skilled labourers educated in the latest technology to fill the coming shortage.

Smart Planning

In 2008, Carleton University introduced its program in Sustainable and Renewable Energy Engineering, featuring a stream in smart technologies. The first class graduates June 2012, and will be equipped with "the advanced knowledge and practical application of Smart Grid principles necessary to lead the industry," proclaims Rafik Goubran, Dean of the Faculty of Engineering and Design at Carleton. Carleton also prides itself on its co-operative education programs. "Our Hydro Ottawa Laboratory for Smart Grid technologies gives students experience with real-time mon-

itoring, analysis and control capabilities of the power grid."

The University of Waterloo — "a pioneer in facing the challenges of the upcoming labour shortage," according to Professor Magdy Salama—has offered a web-based Masters of Engineering in Electric Power Engineering that has been successful in helping current power engineering professionals meet new technological challenges and advance in their careers since 2004. Tracey Forrest, Director of the Waterloo Institute for Sustainable Energy emphasizes the institute's commitment to Ontario's future energy sector, noting that the institute "works closely with utilities and corporate partners to put in place the basis for Ontario companies to thrive in the global marketplace." One example of this commitment is their Energy Hub Management System, a multi-million dollar undertaking designed to help energy users and producers hit micro and macro energy goals.

"At the University of Manitoba, we are investing millions of dollars in the next couple of years to develop the research and training facilities associated with innovative electrical engineering power technologies," says Dr. Jonathan Beddoes, Dean of the Faculty of Engineering. In 2012 and 2013, the university will be investing \$4 million to rejuvenate research

facilities key to training the next generation of electrical engineers, including their Intelligent Power Grid Laboratory.

Dr. Beddoes also stresses the importance of initiatives encouraging elementary and high school students to love math and science, pointing to the university's Kid-Netic Energy program, a series of workshops and day camps designed to engage children in math and science starting in Grade 4.

Indeed, if students aren't interested in math and science, the efforts of these universities will be wasted. But with the right education, young students will come to see that the electrical industry promises competitive salaries and benefits, and plenty of room for rewarding advancement—into managerial positions, for instance. According to Professor Liuchen Chang of the University of New Brunswick (which, incidentally, is located in a region that will lose over 50% of its electrical engineers in the next five years), "new electrical engineers will have lots of opportunities to enhance their knowledge in the field and contribute to a more sustainable energy delivery system." There's a lot of work to do, and Canadian universities are helping people get ahead.

MIKE EVANS
editorial@mediaplanet.com

Sponsor Universities



UNIVERSITY OF
WATERLOO



Carleton
UNIVERSITY

Faculty of
Engineering
and Design

Faculty of
Engineering



UNIVERSITY
OF MANITOBA



The Edward S. Rogers Sr. Department
of Electrical & Computer Engineering
UNIVERSITY OF TORONTO

Focusing on The Backbone is Fundamental to Modernizing Ontario's Electricity Grid



BY DON MACKINNON
President
Power Workers' Union

Ontario's 150,000 kilometers of transmission and distribution lines move electricity from generators to our homes and businesses reliably and safely. This vast grid network covers an area twice the size of Texas while crossing over challenging terrain and through densely populated urban areas. During the last several decades this critical infrastructure has been ageing and now requires significant investments to maintain system reliability.

Now Ontario consumers face another threat. Under the guise of competition, Ontario is approving licenses for new transmission companies that could result in a piecemeal hodgepodge of privately owned transmission lines. Since these new companies won't receive the same government oversight as the provincially owned Hydro One, who will ensure that Ontario consumers get a good deal?

To enable more intermittent renewable generation like wind and solar as well as consumer engagement, new power lines and new "Smart Grid" technologies are being deployed to connect and manage the constantly changing and unreliable output from these generators spread out across the province, often remote from urban centers of high electricity demand.

Regrettably, Ontarians are not being told what these outcomes will cost and when they will show up on their monthly electricity bills.

Additionally, billions of dollars are being spent on carbon-emitting natural gas generation to provide needed backup power when the wind doesn't blow and the sun doesn't shine. That's about seventy percent of the time. Ontario's plan to build much more wind and solar generation means even higher costs and more natural gas generation.

Another part of the plan requires significant investments in conservation and demand management programs and for smart metering infrastructure and data management systems necessary to facilitate time of use rates. While it is claimed that these investments are delivering results, detailed transparent supporting analyses have not been made public. Indeed, it appears that even those consumers who can juggle their electricity consumption in response to time of use rates are seeing minimal results.

In fact, the biggest reason for reduced electricity demand has been the recession and its impact on Ontario's manufacturing and primary industries. Beleaguered industries in Ontario are crying out for a return to competitive electricity rates that could significantly lower their operating costs.

While modernizing Ontario's transmission and distribution network does offer opportunities to create new businesses and growth, investments should be strategic, well planned and designed to sustainably underpin our economy and our environment.


Electrical utilities with ageing distribution infrastructure will face reliability issues if they cannot direct adequate investments to system renewal. Failure to replace and or upgrade core components of the system makes them more prone to failure and less efficient. One of the costliest inefficiencies involves "line losses", when the wires lose energy to heat. Such losses have been on the rise in Ontario for the last ten years and need to be addressed.

Ontario has an extraordinary opportunity to link its reliable, low-carbon nuclear, hydroelectric and biomass generated electricity to the province's transportation sector. By moving to electric vehicles, Ontario could significantly reduce greenhouse gas emissions from its largest source — transportation, while creating tens of thousands of jobs.

Ontario already has the automobile-manufacturing base to build the next generation of electrically powered vehicles. Developing the

associated infrastructure technologies for vehicle charging here in Ontario should be an investment priority.

Building a modern grid calls for a prudent investment strategy based upon critical and comprehensive analysis of the competition and of Ontario's unique advantages. The first priorities should be taking care of the ageing backbone of the province's grid system and leveraging Ontario's real energy and technical advantages.



A SMART INVESTMENT PLAN FOR ONTARIO'S ELECTRICITY GRID

Ontario's 150,000 kilometres of transmission and distribution lines cover an area twice the size of Texas.

Significant investment is required to renew these ageing lines and related equipment like transformer and distribution stations to maintain system reliability.

At the same time, billions more are to be spent on "smart grid" technologies necessary to accommodate the ever-changing output from wind and solar generation.

Smart meters and time of use rates generate huge volumes of data that must be managed and systems that must respond to ever-changing consumer demand.

To keep the lights on, a smart plan's first priority should focus on taking care of the ageing backbone of the system.

For more information please go to www.abetterenergyplan.ca

**FROM THE PEOPLE WHO HELP
KEEP THE LIGHTS ON**

