

# ENGAGED FOR A SUSTAINABLE FUTURE

**2014** Sustainable Electricity™ Annual Report



**Sustainable  
Electricity**  
It's in our power™

**Électricité  
durable**  
Nous avons le pouvoir™



**Canadian  
Electricity  
Association**

**Association  
canadienne  
de l'électricité**

**Engagement** is about tackling challenges head-on, embracing fresh opportunities and working together to realize the full potential of the future.

In 2013, the members of the Canadian Electricity Association (CEA) engaged on key issues of sustainability through the Sustainable Electricity™ program, working to make the industry's environmental, social and economic performance even stronger.

This report presents the outcomes of their efforts and shares the sector's vision for a more sustainable future.



Capital Power's Port Dover and Nanticoke wind project in Ontario was commissioned on time and under budget in 2013, adding 105 megawatts of renewable energy.  
*Photo courtesy of Capital Power Corporation.*

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# Joint Message from the Executives



**The Executives from left to right:** Anthony Haines, President and CEO of Toronto Hydro Corporation and Chair of CEA's Board of Directors; Jim R. Burpee, President and CEO of CEA; and David Morrison, President and CEO of Yukon Energy Corporation and Chair of CEA's Board Committee on Sustainability.

As an industry, we know Canadians want us to invest wisely in power generation, transmission, and distribution infrastructure. They also want us to make decisions that take the bigger picture into account: the needs of the communities we serve; the impact of our operations on the environment and society; the continued ability of electricity to power the Canadian economy; and the ways we can give back as responsible corporate citizens.

That is why the Corporate Utility Members of the Canadian Electricity Association created the Sustainable Electricity program in 2009; as a way of driving continuous improvement and innovation in the industry's environmental, social and economic performance. We are committed to reporting our progress in each of these pillars of sustainability in a timely and transparent manner to you, our stakeholders.

## **MILESTONES MET, OPPORTUNITIES IDENTIFIED**

In 2013, CEA members once again demonstrated their collective commitment to making material advances in key priority areas. For example, we saw gains in measures such as total nitrogen oxide and sulphur dioxide emissions, which decreased by 2.2 per cent and 2.6 per cent, respectively, from the previous year. We also identified areas such as priority spill prevention that will continue to require further attention and effort.

Throughout the year, members contributed to their communities and responded swiftly when major weather events affected their customers and employees. Notable examples include the floods in Calgary and Toronto in summer 2013 and the winter storms that gripped Toronto and parts of New Brunswick toward the end of the year. Such extreme events point to the fact that severe weather appears to be worsening. This brings two challenges for our industry: setting new levels of preparedness so we can respond to such circumstances more effectively; and more directly addressing the need for climate change adaptation.

Climate change adaptation requires the adjustment of our practices, processes and systems in response to projected or actual climate events. In January 2013, CEA formalized an Adaptation Working Group to advance industry efforts in this area, improve stakeholder awareness, and engage with government-led adaptation initiatives such as the Adaptation Platform established by Natural Resources Canada. Through the Adaptation Platform, CEA secured funding for a national project to identify ways of improving planned electricity infrastructure investments by including adaptation considerations.

## THE NEED TO ENGAGE ACTIVELY

In meeting the needs of Canadian communities, businesses and governments, we recognize the importance and necessity of reaching out to and engaging with our stakeholders. From concerns about the impact of new infrastructure projects to increasing demand for cost-effective and sustainable power, especially in remote communities, we have a duty to consult. We are proud of the industry's good relationships, particularly with Aboriginal Peoples, and aim to continue to strengthen them going forward.

Looking to the future is inherent in our sector's business approach. Much of the discussion among the CEA Board of Directors last year focused on infrastructure investment; identifying ways to innovate and modernize so we can contribute to a low-carbon economy and realize the full value of this country's electricity system.

To guide the industry's future sustainability efforts, CEA developed *Vision 2050* over the course of 2013, publishing the final version in March 2014. With its focus on renewing the electricity system, delivering maximum value and contributing to a low-carbon economy, *Vision 2050* will help the industry as a whole engage with government on key policy issues, set priorities for future infrastructure investments and inform the approach we take to measuring our sustainability performance going forward.

We would like to congratulate all CEA members on their efforts over the past year. We are pleased to share this report on our collective progress with all readers interested in Canada's sustainable electricity future, a future that belongs to every one of us.



Jim R. Burpee  
President and CEO  
Canadian Electricity Association



Anthony Haines  
President and CEO, Toronto Hydro Corporation  
Chair, CEA Board of Directors



David Morrison  
President and CEO, Yukon Energy Corporation  
Chair, CEA Board Committee on Sustainability

# Letter from the Public Advisory Panel

Mr. Anthony Haines  
President and Chief Executive Officer,  
Toronto Hydro Corporation  
Chair, Canadian Electricity Association Board of Directors

Dear Mr. Haines:

The members of the Sustainable Electricity program's Public Advisory Panel are pleased to submit this annual letter of advice to the CEA Board of Directors. Our role is to provide the perspective of informed public representatives on the environmental, social and economic performance of Canada's electricity industry as measured against the principles and indicators of the program.

The Panel believes the electricity sector in Canada is at a critical stage in its history, requiring continued innovation and adaptation to a changing business environment. We are confident the sector is capable of these things.

The main message is that while the industry's overall performance on environmental, social and economic indicators is good—and in some cases, very good—several improvements are still required. Overall, we are pleased with what appears to be a clear sense of direction and fresh enthusiasm for creative and innovative solutions to the challenges faced by CEA member companies.

The Panel would like to highlight the following key performance areas:

## AIR EMISSIONS

CEA generation companies have made strong efforts to scale back coal-fired electricity generation and reduce air emissions in Canada. In the past five years, coal-fired generation has shrunk by more than 6,000 MW and is projected to decrease by a further 7,000 MW over the next 25 years, further reducing associated air emissions of CO<sub>2</sub>,

SO<sub>2</sub>, NO<sub>x</sub>, mercury and particulate matter.<sup>1</sup> This is significant not only for the electricity generation sub-sector but in fact for all Canadians given the broader environmental benefits. We note the immediate reduction in coal-fired generation and associated emissions would not have been possible without Ontario Power Generation's reduction of its coal-fired capacity over the past 10 years.

The Panel is aware that the electricity sector is the only major industrial sector for which Environment Canada has projected to make significant absolute CO<sub>2</sub> emission reductions by 2020. Relative to 2005 emission levels, Environment Canada expects the sector to reduce CO<sub>2</sub> emissions by 41 million tonnes (34 per cent) by 2020.<sup>2</sup> Even greater reductions are expected by 2040, when coal-fired electricity generation capacity is projected to be 80 per cent lower than it was in 2007. CEA generation members are responsible for the bulk of this coal-fired capacity in Canada; we on the Panel are pleased by the significant progress on air emissions made since 2009.

## SUSTAINABLE ELECTRICITY COMPANY DESIGNATION

CEA members have also made substantial progress implementing ISO 14001 (*Environmental Management Systems*), with increased internal and external auditing. As well, they have made an encouraging start at achieving the CEA sustainability brand designation, Sustainable Electricity Company<sup>3</sup>, based primarily on ISO 26000 (*Guidance on Social Responsibility*).



Mike Harcourt, Chair, Public Advisory Panel, CEA Sustainable Electricity Program

<sup>1</sup> Based on CEA analysis of National Pollutant Release Inventory (NPRI) emissions data; forecasting based on units currently in operation and expected coal plant retirements (45-50 years) under the 2012 federal regulation on *Reduction of Carbon Dioxide Emissions from Coal-fired Generation*.

<sup>2</sup> Environment Canada, Addressing Climate Change and Air Quality, [www.ec.gc.ca](http://www.ec.gc.ca).

<sup>3</sup> [www.SustainableElectricityCompany.ca](http://www.SustainableElectricityCompany.ca)

Three companies are now designated (Horizon Utilities Corporation, AltaLink and Toronto Hydro Corporation) and a number of other companies are working toward this designation. Our Panel applauds these efforts and encourages all CEA members to follow suit through the full implementation of ISO 14001 and 26000 standards. Doing so will help establish a world-leading brand name for Canadian electricity companies.

## AREAS FOR PERFORMANCE IMPROVEMENT AND MEASUREMENT

The Public Advisory Panel has identified several areas in which CEA member companies need to make more concentrated efforts to improve their performance:

- **Priority spills:** Relative to 2012, a 26.5 per cent increase in the number of reported spills occurred in 2013. This is a concern for the Panel. We understand the issue may be limited to a few organizations, and in some cases due to extreme weather, human errors, and vandalism, but these companies must take action to improve their record and communicate the preventative actions being taken.
- **Climate change adaptation:** The sector has identified climate change adaptation as a significant issue, yet only about 57 per cent of CEA member companies have climate change adaptation plans. We find this puzzling given the industry's emphasis on maintaining system reliability, and so urge all companies to prepare adaptation plans without delay.
- **Reporting indicators:** While CEA and its members have done a tremendous job of developing key sustainability indicators, the Panel believes the sector should establish more meaningful performance indicators in the following areas and report on progress against them in the next annual report:
  - Biodiversity and stewardship (impacts on land, water and species)
  - Climate change adaptation
  - Health and safety (consider developing new leading indicators)
  - Aboriginal engagement and partnerships
  - Stakeholder engagement
  - Energy efficiency and conservation

- Investments in renewable energy
- Infrastructure investments (maintenance versus new spend)

We believe the Sustainable Development Index (SDI) should be aligned with these new indicators.

The materiality assessment undertaken last year (and completed in March 2014) supports the need to focus on many of the above issues, and the Panel notes that CEA members are involved in a number of projects and initiatives to address them. We look forward to seeing further substantive progress over the coming year.

## VISION 2050

Developed over the course of 2013 and published in the current year, *Vision 2050* presents the sector's vision for Canada's electricity system between now and 2050. We appreciate this forward thinking from CEA and its members. *Vision 2050* proposes practical and proactive strategies and actions to renew the aging electricity system, deliver maximum value to customers and citizens, and contribute to a low-carbon economy.


The Panel supports the four key recommendations of *Vision 2050*, including accelerating customer innovation and management of energy; implementing financial instruments for carbon reduction, including a North American carbon price that is implemented across the economy; enabling electric vehicles; and expanding collaboration with the U.S. to optimize electricity assets while expanding opportunities for electricity storage and the export of low-carbon electricity. The Panel particularly supports the need for a broad approach to carbon pricing in Canada.

The Panel appreciates this opportunity to closely observe and comment on the sustainability performance of the electricity industry at a critical time in its evolution. We applaud the substantive progress made to date and the anticipated future progress of the electricity sector.

Yours sincerely,



Mike Harcourt  
Chair, Public Advisory Panel  
CEA Sustainable Electricity Program



# Sustainable Electricity Program Highlights

Sustainable Electricity is a mandatory program for Corporate Utility Members of the Canadian Electricity Association. Guiding member efforts on sustainability is a Policy for Sustainable Development—Corporate Responsibility, which includes 10 principles on environmental, social and economic issues.

The CEA Board of Directors has overall responsibility for the program. A Board Committee on Sustainability provides strategic direction on the implementation of the program.

Current members on the Board Committee include:

David Morrison, President and CEO, Yukon Energy Corporation;  
Max Cananzi, President and CEO, Horizon Utilities Corporation;  
Brian Vaasjo, President and CEO, Capital Power Corporation;  
Carmine Marcello, President and CEO, Hydro One Inc.;  
and Greg Reimer, Executive Vice-President, BC Hydro and Power Authority.

A Steering Committee with representatives from all Corporate Utilities is responsible for managing day-to-day issues, including the development of performance indicators and metrics.

## Principles of the program

### ENVIRONMENTAL PERFORMANCE

**Environment:** Minimize the adverse environmental impacts of our facilities, operations and businesses

**Stewardship and Biodiversity:** Manage the environmental resources and ecosystems that we affect to prevent or minimize loss and support recovery

**Climate Change:** Manage greenhouse gas emissions to mitigate the impact of operations on climate change, while adapting to its effects

### SOCIAL PERFORMANCE

**Health and Safety:** Provide a safe and healthy workplace for our employees and contractors

**Workplace:** Support a fair, respectful and diverse workplace for our employees and contractors

**Communications and Engagement:** Communicate with and engage our stakeholders in a transparent and timely manner

**Aboriginal Relations:** Communicate with and engage Aboriginal Peoples in a manner that respects their culture and traditions

### ECONOMIC PERFORMANCE

**Economic Value:** Provide economic benefits to shareholders, communities and regions in which we operate

**Energy Efficiency:** Produce, deliver and use electricity in an efficient manner while promoting conservation and demand-side management

**Security of Supply:** Provide electricity customers in a safe, reliable and cost-effective manner to meet current and future needs



# Taking stock: Materiality Assessment

Part of continuing to improve performance involves the ongoing refinement of how performance is measured. As part of the five-year review of the Sustainable Electricity program, CEA initiated a Materiality Assessment in December 2013 to ensure its priorities are aligned with those of its stakeholders.

Key material issues identified through this assessment included:

- Infrastructure and grid modernization
- Climate change mitigation (greenhouse gas emissions)
- Climate change adaptation
- Biodiversity
- Aboriginal Peoples (building relationships)
- Electricity demand
- Governance (accountability, transparency)
- Business model pressures (innovation, distributed generation and integration of renewable energy)

This Materiality Assessment will assist CEA in renewing its commitment to sustainability and addressing those issues most relevant to stakeholders in a meaningful manner.

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## AltaLink earns Sustainable Electricity Company™ designation

With an official announcement made in the early days of 2014, Calgary based AltaLink became the country's first transmission company and the second major electricity company to earn the Canadian Electricity Association's Sustainable Electricity Company designation. To obtain this standing, companies must commit to meeting internationally recognized standards—ISO 14001 (*Environmental Management Systems*) and ISO 26000 (*Guidance on Social Responsibility*)—and pass a third-party verification to validate their implementation.

"AltaLink's designation is another significant milestone in making the electricity sector more environmentally, socially and economically responsible," said Jim Burpee, CEA's President and Chief Executive Officer. "I congratulate AltaLink for meeting the brand designation requirements."

CEA encourages all utilities to adopt, use and adhere to the Sustainable Electricity Company brand criteria as a tangible and visible demonstration of their commitment to sustainability.

For more information, visit  
**[www.SustainableElectricityCompany.ca](http://www.SustainableElectricityCompany.ca)**



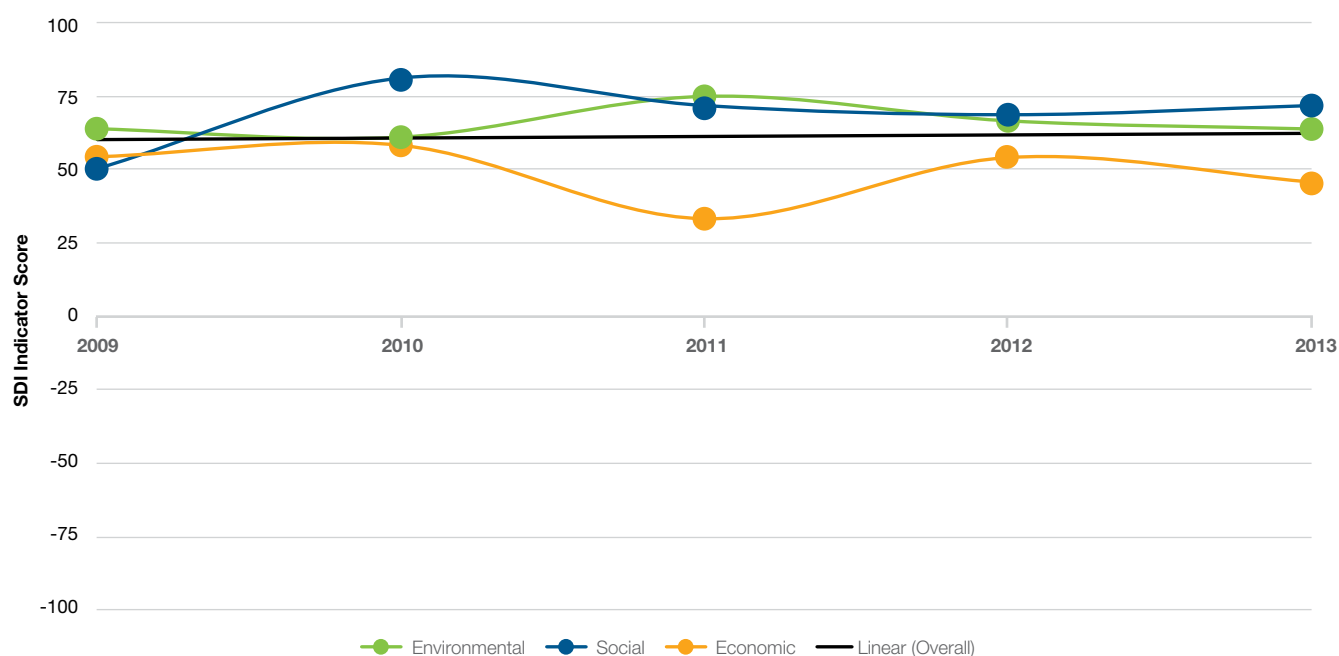
AltaLink brand designation ceremony. **Pictured from left to right:** Jim R. Burpee, President and CEO of CEA; Dennis Frehlich, Executive Vice President and COO of AltaLink; and Channa Perera, Director, Sustainable Development at CEA.

## Sustainable Development Index

Designed to measure the overall progress of CEA members towards achieving sustainability, the Sustainable Development Index (SDI) shows year-over-year performance for the last five years against baseline data from 2007–2008. Each of the indicators tracked by the SDI is assigned a score between -100 and +100 relative to the baseline and the standard deviation of the data set.

As Figure 1 illustrates, the overall sustainable development performance of CEA member companies has remained flat over the last five years; however, environmental, social and economic trends have shown greater fluctuation within the positive score range of the Index.

**FIGURE 1. Sustainable Development Index\***



	2009	2010	2011	2012	2013
Metrics with the Greatest Positive Contribution	NO <sub>x</sub> Emissions	Partnerships with Aboriginal Groups	Sulphur Dioxide Emissions	All Injury/Illness Frequency Rate	Sulphur Dioxide Emissions
	Investment in Generation Infrastructure	Investment in Generation Infrastructure	Investment in Generation Infrastructure	Investment in Generation Infrastructure	Investment in Generation Infrastructure
Metrics with the Greatest Negative Contribution	Priority Spills	Priority Spills	Priority Spills	Priority Spills	Priority Spills
	Companies with Public Education Programs	System Average Interruption Frequency Index	System Average Interruption Frequency Index	System Average Interruption Frequency Index	System Average Interruption Duration Index

\* Note: Since the previous report, the SDI baseline of 2004–2005 has been changed to 2007–2008 to better reflect the sector's sustainability performance over the last five years. Regarding the metrics noted in the above table, they provide a sample of positive and negative performance for any given year.

## SDI performance trends

### ENVIRONMENTAL

While the overall environmental performance of CEA members has fluctuated in the last five years, metrics related to air emissions (SO<sub>2</sub>, NO<sub>x</sub> and CO<sub>2</sub>) within the SDI are steadily improving due to changes in the fuel mix and the retirement of coal-fired facilities, particularly in Ontario. However, priority spills continue to have a negative impact on overall environmental performance. CEA members, both individually and collectively, are working to understand the root causes of these spills, some of which can be attributed to aging infrastructure, human errors, and vandalism. Members also have spill containment and clean-up programs in place to minimize potential environmental impacts.

### SOCIAL

Although social performance remains one of the strongest areas for CEA members, overall performance has declined slightly since peaking in 2010. Activities related to Aboriginal engagement and public communications have remained flat in recent years relative to the baseline, resulting in a lower score for those specific indicators. The same is true for the

indicators related to health and safety; while the all injury/illness and lost-time injury frequency rates continued on a positive trajectory, the number of calendar days lost due to severe injuries increased at a few companies, again resulting in a lower score. Many of these injuries were a result of overexertion, falls and being struck by objects. Electrical injuries (i.e., flow of current through the body) remain a rare occurrence.

### ECONOMIC

The economic performance of CEA members continues to fluctuate from year to year. Although investments in generation, transmission and distribution infrastructure have helped drive economic performance in a positive direction, the frequency and duration of outages continue to diminish overall performance. While severe weather, system maintenance shutdowns and aging infrastructure all play a part in these outages, the primary cause remains contact with trees and vegetation management. CEA members are aware of this issue and are working diligently to bring it under control.

## SDI INDICATORS

ENVIRONMENTAL	SOCIAL	ECONOMIC
<ul style="list-style-type: none"> <li>Nitrogen oxide emissions (tonnes)</li> <li>Nitrogen oxide intensity (net system)</li> <li>Sulphur dioxide emissions (tonnes)</li> <li>Sulphur dioxide intensity (net system)</li> <li>Carbon dioxide equivalent emissions (tonnes)</li> <li>Carbon dioxide equivalent intensity (net system)</li> <li>Priority spills</li> <li>Sulphur hexafluoride emissions (tonnes)</li> <li>Implementation of environmental management systems (per cent)</li> </ul>	<ul style="list-style-type: none"> <li>All injury/illness frequency rate (per 200,000 hours)</li> <li>Lost-time injury frequency rate (per 200,000 hours)</li> <li>Lost-time injury severity rate (calendar days lost per 200,000 hours)</li> <li>Companies producing sustainability reports (per cent)</li> <li>Companies with public education programs (per cent)</li> <li>Companies with Aboriginal relations group or positions (per cent)</li> <li>Companies with partnerships with Aboriginal Peoples (per cent)</li> <li>Companies with procedures for training and employment of Aboriginal Peoples (per cent)</li> </ul>	<ul style="list-style-type: none"> <li>Total capital expenditures on generation infrastructure (\$)</li> <li>Total capital expenditures on transmission infrastructure (\$)</li> <li>Total capital expenditures on distribution infrastructure (\$)</li> <li>System Average Interruption Duration Index (SAIDI) (hours)</li> <li>System Average Interruption Frequency Index (SAIFI) (per customer)</li> <li>Total value of annual company charitable donations (\$)</li> </ul>

# Member performance at a glance



## Net generation by fuel type (gigawatt-hours)

	2012	2013	Percentage difference
Coal	42,957	42,868	-0.2 ↓
Oil	1,408	1,994	41.6 ↑
Diesel	273	283	3.6 ↑
Natural gas	16,769	13,946	-16.8 ↓
Hydroelectric	170,765	171,648	0.5 ↑
Nuclear	49,457	48,815	-1.3 ↓
Other renewables	3,482	4,585	31.7 ↑
<b>TOTAL NET GENERATION</b>	<b>285,112</b>	<b>284,140</b>	<b>-0.3 ↓</b>
Renewables purchased from non-CEA member companies	6,519	5,935	-9.0 ↓



## Transmission and distribution lines

	2012	2013	Percentage difference
Total length of distribution lines (kilometres)	690,547	712,916	3.2 ↑
Total length of transmission lines (kilometres)	115,460	117,569	1.8 ↑



## Environment

	2012	2013	Percentage difference
Total gross annual nitrogen oxide emissions (thousand tonnes)	107.04	104.68	-2.2 ↓
Nitrogen oxide net fossil intensity (tonnes/GWh)	1.75	1.77	1.5 ↑
Nitrogen oxide net system intensity (tonnes/GWh)	0.37	0.36	-1.7 ↓
Total gross annual sulphur dioxide emissions (thousand tonnes)	248.03	241.52	-2.6 ↓
Sulphur dioxide net fossil intensity (tonnes/GWh)	4.60	4.54	-1.1 ↓
Sulphur dioxide net system intensity (tonnes/GWh)	0.87	0.85	-2.6 ↓
Total gross annual direct carbon dioxide equivalent emissions from fossil generation (million tonnes)	51.97	50.11	-3.6 ↓
Carbon dioxide equivalent net fossil intensity (tonnes/GWh)	850.25	852.27	0.2 ↑
Carbon dioxide net system intensity (tonnes/GWh)	178.39	172.93	-3.1 ↓
Number of priority spills	102	129	26.5 ↑
Total sulphur hexafluoride used for maintenance purposes (kilograms)	5,690	6,455	13.4 ↑
Companies with an ISO consistent environmental management system (per cent)	83	87	4.0 ↑







## Society

	2012	2013	Percentage difference
All injury/illness frequency rate (injuries per 200,000 hours)*	1.77	1.73	-2.3 ↓
Lost-time injury frequency rate (lost-time injuries per 200,000 hours)*	0.79	0.73	-7.6 ↓
Lost-time injury severity rate (calendar days lost per 200,000 hours)*	15.49	19.50	25.9 ↑
Companies producing a sustainability report (per cent)	57	60	5.9 ↑
Companies with public education programs (per cent)	90	93	3.7 ↑
Companies operating in Aboriginal communities that have an Aboriginal relations group or senior Aboriginal advisory position (per cent)	74	78	5.9 ↑
Companies operating with Aboriginal communities that have business relationships or partnerships with Aboriginal communities (per cent)	100	100	0.0
Companies with procedures for training and employment of Aboriginal Peoples (per cent)	87	87	0.0

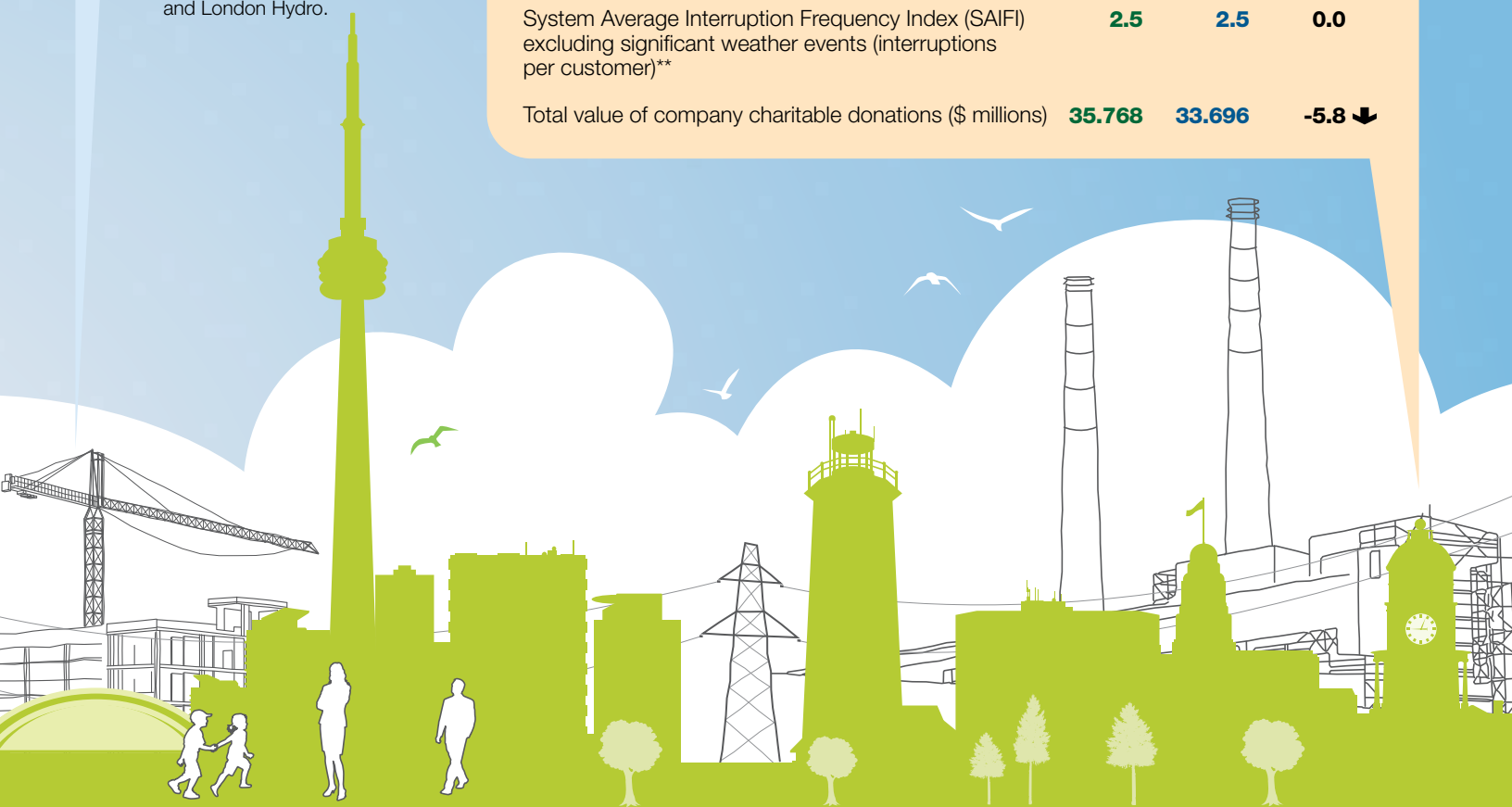


## Economy

\* Note: These figures also include Hydro Québec's safety performance related to generation, transmission and distribution operations.

\*\* Note: These figures also include data from the City of Red Deer, Enersource Hydro Mississauga, Hydro Québec, Newmarket-Tay Power Distribution Ltd., Northland Utilities, Oshawa PUC Networks, PowerStream Inc., St. Thomas Energy, Veridian Connections, Waterloo North Hydro, Yukon Electrical Co. Ltd., and London Hydro.

	2012	2013	Percentage difference
Total capital expenditures on new/refurbished generation infrastructure (\$ billions)	4.482	5.246	17.0 ↑
Total capital expenditures on new/refurbished transmission infrastructure (\$ billions)	4.290	5.704	33.0 ↑
Total capital expenditures on new/refurbished distribution infrastructure (\$ billions)	3.332	3.295	-1.1 ↓
System Average Interruption Duration Index (SAIDI) excluding significant weather events (duration in hours)**	4.4	5.9	34.1 ↑
System Average Interruption Frequency Index (SAIFI) excluding significant weather events (interruptions per customer)**	2.5	2.5	0.0
Total value of company charitable donations (\$ millions)	35.768	33.696	-5.8 ↓



# Key Industry Challenges

Canada's electricity sector faces a number of long-term challenges on its journey toward sustainability. In 2013, some of the key challenges included:

## Infrastructure investment

With much of Canada's generation, transmission and distribution infrastructure nearing the end of its life expectancy, investing in infrastructure renewal and modernization will be essential to ensuring a reliable, cost-effective and sustainable supply of electricity, both today and in the future. Timely investment in infrastructure renewal is important because electricity is the backbone of the Canadian economy, powering everything from household electronics to the critical systems in hospitals and businesses.

What is needed is a robust electricity system that is modern, flexible and innovative. However, the sector faces numerous hurdles to infrastructure investment and development, ranging from raising capital to increasing community awareness of the need for these investments. Governments, regulatory agencies and communities will need to work closely with utilities to address these issues.

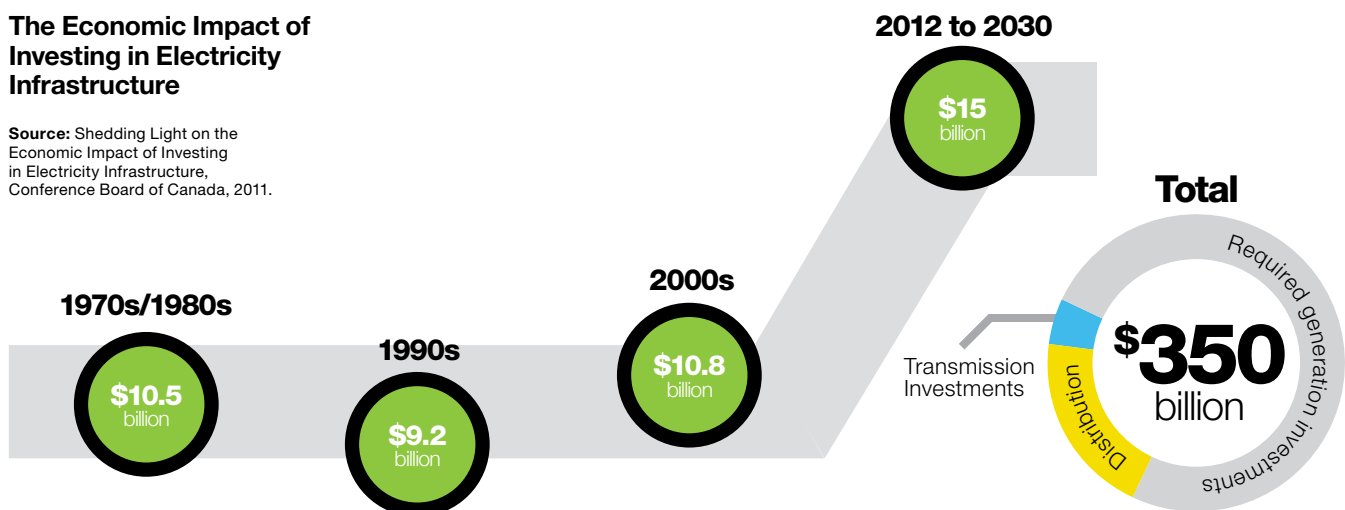
## Policy and regulatory environment

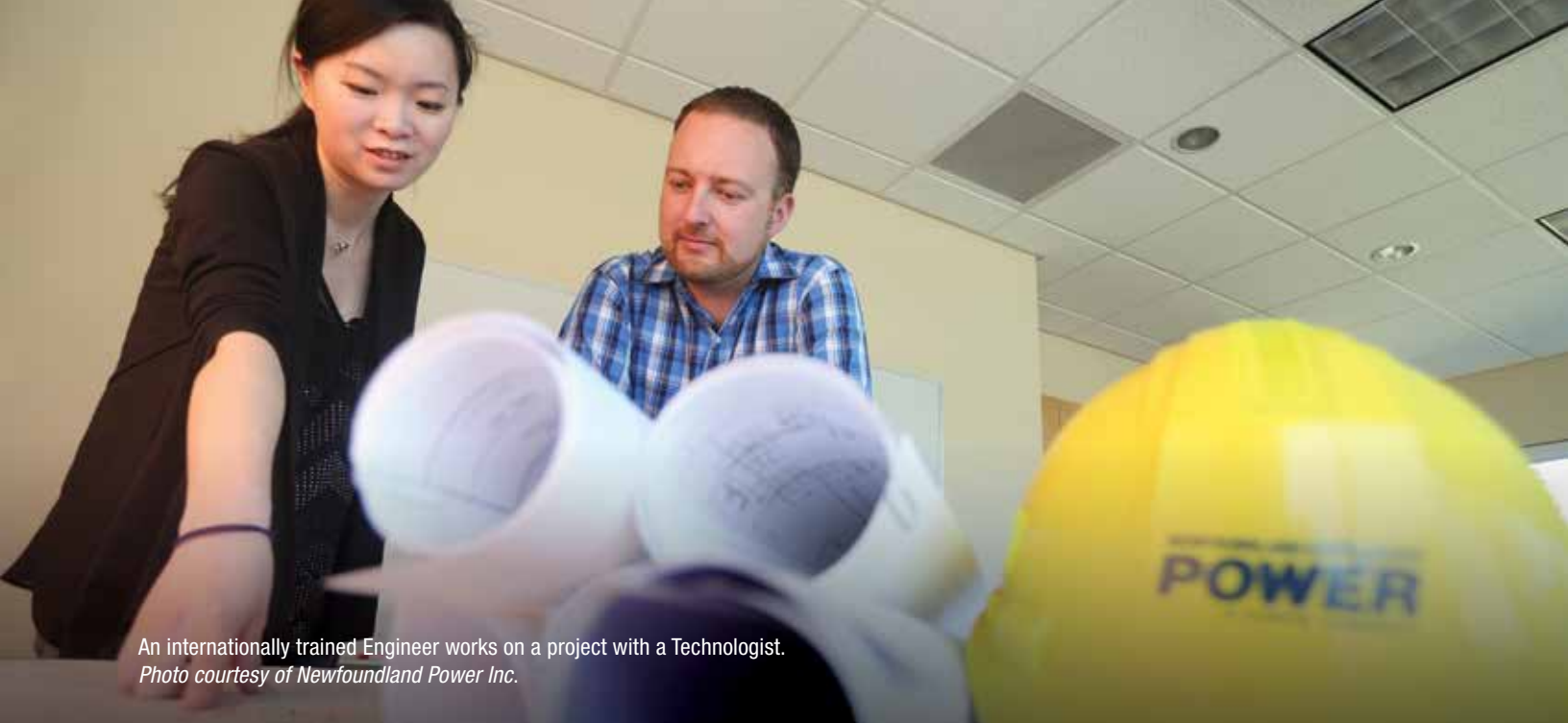
An efficient regulatory environment is important for meeting business objectives and customer expectations. At the federal level, there is a continued need to improve the implementation of various pieces of environmental legislation, including the *Species at Risk Act* and the *Fisheries Act*. Provincially, there is a need to modernize utility regulatory models to accommodate greater innovation and sustainability in the sector.

At the same time, utilities are facing new performance-based regulatory mandates as well as new expectations to integrate variable generation sources and smart grid technologies. As a result, the traditional business models and market structures used by utilities are changing rapidly. There is also a growing trend toward customer-focused services; policymakers and regulators should support and facilitate this shift.

## The Economic Impact of Investing in Electricity Infrastructure

**Source:** Shedding Light on the Economic Impact of Investing in Electricity Infrastructure, Conference Board of Canada, 2011.





An internationally trained Engineer works on a project with a Technologist.  
*Photo courtesy of Newfoundland Power Inc.*

## Climate change

CEA members must address climate change on two fronts: the mitigation of greenhouse gas emissions; and the adaptation of the electricity system to the long-term impacts of climate change. While the sector is actively working to reduce its GHG emissions and reliance on fossil fuels, adapting to severe weather and other climate-related changes is a much greater challenge.

As illustrated by the Toronto ice storm of December 2013, which left nearly 300,000 customers in the dark, considerable effort is still required by governments, regulators and utilities to ensure the electricity system can withstand increasingly frequent severe weather events. Extreme weather will continue to have a profound impact on generation, transmission and distribution systems. A coordinated effort must be undertaken by all key stakeholders to ensure investments are made now to make the power grid more resilient.

## Human resources

Ensuring an adequate supply of skilled workers is critical to the future of Canada's electricity industry. Yet the workforce continues to age, resulting in a number of demographic related challenges. For example, the impending retirement of a large percentage of long-term employees will make it difficult to ensure the effective transfer of organizational and operational knowledge.

As it seeks to renew its workforce, the sector will face increased competition for highly skilled workers. Collaboration between utilities, governments and educational/training institutions will be required to ensure the development of a skilled and ready workforce.

## CEA appoints two new Public Advisory Panel members

After serving for nearly five years, Professor Yves Le Bouthillier (University of Ottawa, Ontario) and Dr. Judith Sayers (Hupacasath First Nation in Port Alberni, British Columbia) retired from the Public Advisory Panel as of December 31, 2013. The Canadian Electricity Association would like to thank them for their excellent contributions over the years to advance sustainability in the electricity sector.

Their replacements are Mr. Douglas Turnbull, Deputy Chairman of TD Securities Inc. in Toronto, Ontario; and Mr. Kirt Ejesiak, CEO of Red Boat Group of Companies in Nunavut. Mr. Turnbull has more than 35 years of experience in fixed income capital markets and mergers and acquisitions, and co-chairs the Aboriginal Affairs and Northern Development Canada (AANDC)–Assembly of First Nations (AFN) Working Group on Natural Resources Development. Mr. Ejesiak has extensive experience in the public and private sectors, and has represented Nunavut in many capacities at the regional, national and international levels.





# Environmental Performance


ENGAGING IN INNOVATION TO REDUCE ENVIRONMENTAL IMPACT

CEA member companies are committed to reducing their environmental footprint by investing in emission abatement, low-carbon fuel sources and enhanced environmental management practices and to meeting Canadians' expectations for sustainable, environmentally sound approaches with minimal impact on their communities and landscapes.

Last year, CEA members furthered their efforts to implement environmental management systems, engage with governments and other stakeholders to protect biodiversity, and address the impacts and vulnerabilities of climate change.

**2.6%**   
DECREASE IN SULPHUR DIOXIDE  
FROM 2012

**12.9%**   
DECREASE IN MERCURY EMISSIONS  
FROM 2012

**3.6%**   
DECREASE IN CO<sub>2</sub>EQ EMISSIONS  
FROM 2012

*Green indicates improved performance.*





## ENVIRONMENTAL PERFORMANCE CASE STUDY

# ATCO Electric:

## An innovative approach to powering Jasper National Park

Any construction and maintenance activities in Jasper National Park have to preserve both the natural environment and the tourist experience. For electricity provider ATCO Electric, this means taking extra steps to avoid affecting wildlife, water bodies and vegetation, and to reduce the visual impact of power lines.

In 2013, a six-kilometre section of distribution line was nearing its end of life. Constructed in the 1950s, the line's thin, bare conductor was prone to faults from falling trees and heavy snowfalls, causing service interruptions at tourist attractions like Marmot Basin Ski Resort. Because the line follows narrow rights-of-way, crosses three rivers and is built on rough mountain terrain, upgrading it in a way that balanced the need for reliable service with Parks Canada's environmental requirements required outside-the-box solutions.

### Overcoming challenging terrain

For only the second time in its history, ATCO Electric decided to install an aerial spacer cable system. Constructed with heavy-gauge messenger wire, a wire used to support the aerial cable, covered cable and spacer brackets attached every 30 feet, the system can better withstand falling trees. It is also compact, making it suitable for narrow rights-of-way. While spacer cable technology has existed for many years, it has not been widely used in Alberta, making this a new experience for the project team that involved extensive research, planning and training.

Even with the spacer cable technology, constructing a line in this environment proved challenging. The narrow rights-of-way meant standard bucket trucks could not access the line in several areas, a particularly pressing problem given that spacer brackets needed to be installed every 30 feet along the line. The solution? Boatswain's chairs, which allowed ATCO Electric employees to be safely suspended from the messenger wire to perform aerial work. A new work method had to be developed specifically for this application. It proved so successful that it will be used for future maintenance of the line.

Bucket trucks were not the only vehicles unable to reach the work site. In some areas, the usual methods of hauling materials would not work. After considering a number of options, a helicopter was used to transport poles, saving time and reducing traffic on the rights-of-way. Other low-ground-pressure vehicles like rubber-tracked all-terrain vehicles further kept ground disturbance to a minimum.

## FACING FORWARD

In developing their collective vision for the electricity sector to 2050, CEA members agreed the industry has a responsibility to future generations to increase efficiency and conservation, reduce waste and make transparent decisions.

Environmentally, that means speeding up the pace of innovation so new solutions for energy efficiency, renewable energy deployment, energy storage and the use of electric vehicles get to market faster.

It also means using financial tools to promote carbon reduction among consumers, businesses and across the Canadian economy.

Visit [www.Vision2050.ca](http://www.Vision2050.ca).



ATCO Electric employees using traditional aerial work methods.  
*Photo courtesy of ATCO Electric.*

Crews completed stringing from pre-planned stringing locations selected to minimize disturbance. A lead roller pulled the conductors along the messenger wire on roller brackets, each attached to the next in line by a 30-foot rope, greatly minimizing travel along the right-of-way.

## Minimizing impact on tourism

Because the winter construction period overlapped Marmot Basin Ski Resort's operating season, minimizing impact on the resort was key. At the Miette River crossing, a temporary underground bypass avoided temporary pole placement and allowed the ski resort to remain in operation. Night-time outages were arranged at another creek crossing.

The effort and careful consideration paid off. The line was successfully energized in late 2013, and already park staff has noticed significant improvements on service reliability. Because of this success, ATCO Electric is now looking to use the aerial spacer cable system in other areas.



A section of the newly-installed aerial spacer cable system along the Astoria River.  
*Photo courtesy of ATCO Electric.*

# PRINCIPLE 1: ENVIRONMENT



## Minimize the adverse environmental impacts of our facilities, operations and businesses

Reducing the sector's environmental impact is a major preoccupation for CEA members. Last year, that meant continuing to implement environmental and integrated management standards and an ongoing focus on managing air emissions, priority spills and polychlorinated biphenyls (PCBs).

### Standardizing our approach to environmental management

International standards related to the use of environmental management systems (EMS), such as ISO 14001:2004, give utilities the tools and insights needed to set objectives and develop programs for improving environmental performance. By the end of 2013, 87 per cent of CEA members had an ISO 14001-consistent EMS in place, up from 83 per cent the year before. The remaining companies are in the process of either implementing a new EMS system or developing an integrated management system that also encompasses other issues such as health and safety.



### EMS implementation by CEA members

	2012	2013
ISO 14001 or equivalent environmental management system (EMS)	83%	87%
EMS audited by an external/internal auditor within the last three years	87%	90%

In addition to an increase in the number of companies with an ISO 14001-consistent EMS, the percentage of companies undergoing EMS audits within the past three years has also increased, reaching 90 per cent, an all-time high for CEA members. This level of commitment to ISO 14001—and members' overall conformance with the standard—is significant. These systems lead to the systematic identification of operational risks, increased compliance with laws and regulations and, most importantly, reduced environmental impacts.

### Actively managing emissions

The electricity sector as a whole (including CEA members and non-members) is responsible for about 22 per cent of sulphur dioxide (SO<sub>2</sub>) emissions and eight per cent of nitrogen oxide (NO<sub>x</sub>) emissions in Canada.<sup>4</sup> In absolute terms, the electricity sector in total contributed 283.80 thousand tonnes of SO<sub>2</sub> and 165.77 thousand tonnes of NO<sub>x</sub> emissions in 2012 (the latest available data for Canadian utilities). CEA member companies were responsible for 87 and 65 per cent of this total sector contribution, respectively.

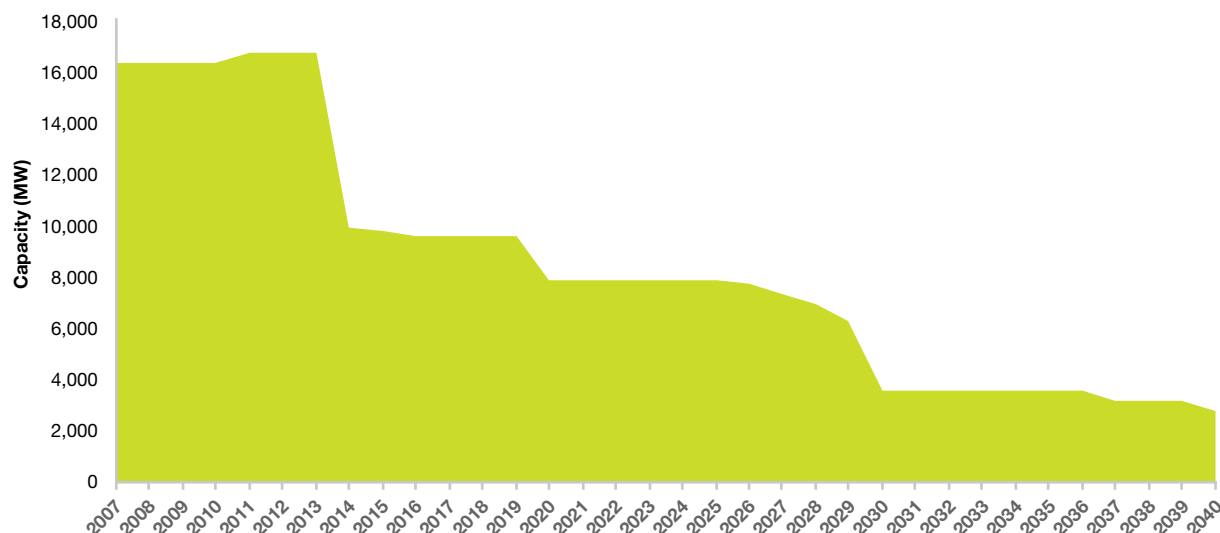
Overall, the sector's contribution to national air emissions is declining, helping to reduce smog and its associated health impacts. This decrease is the result of a number of factors, including the decommissioning of several coal-fired power plants (especially in Ontario), fuel switching from coal to natural gas and the introduction of more renewable generation to the collective fuel mix.

<sup>4</sup> Environment Canada. (2012). *National Pollutant Release Inventory and air pollutant emission summaries and trends*. Retrieved from [www.ec.gc.ca/npri](http://www.ec.gc.ca/npri).

As Figure 2 indicates, as older coal-fired generation facilities continue to be shut down due to capital stock turnover and in accordance with the new federal regulations on coal-fired power generation, coal capacity in Canada will decline by

about 80 per cent by 2040 compared to 2007 levels. This reduction in coal-fired electricity capacity is also expected to further reduce SO<sub>2</sub> and NO<sub>x</sub> emissions by at least 50 per cent by 2020 and 80 per cent by 2040.\*

**FIGURE 2. The electricity sector will dramatically reduce coal capacity over the next 25 years**



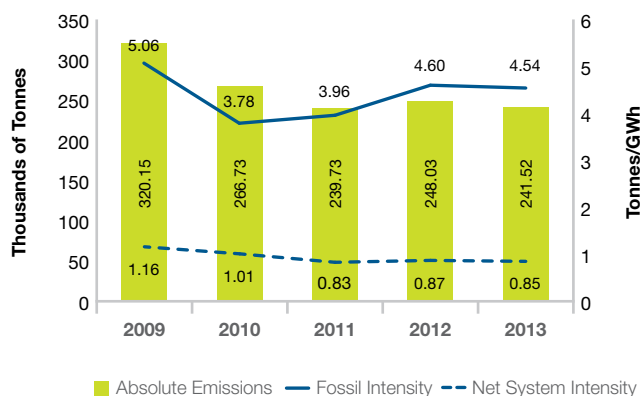
\* Source and assumptions: Based on CEA analysis of National Pollutant Release Inventory (NPRI) emissions data; forecasting based on units currently in operation, and expected coal plant retirements (45-50 years) under the 2012 federal regulation on *Reduction of Carbon Dioxide Emissions from Coal-fired Generation*.

## SULPHUR DIOXIDE EMISSIONS

In 2013, CEA members were responsible for approximately 241.52 thousand tonnes of SO<sub>2</sub> emissions, down 2.6 per cent from 2012 levels (Figure 3). Annual SO<sub>2</sub> levels can be influenced by a multitude of factors, including the decommissioning of coal plants, the use of flue-gas desulfurization technology and the quality of coal used for generation purposes. Relative to 2009 levels, CEA member utilities have reduced SO<sub>2</sub> emissions by 24.6 per cent, a trend that continues to be driven by the decrease in coal-fired generation, the use of low-combustion firing systems and the transition to lower-emitting fuels, including natural gas (which does not contribute to SO<sub>2</sub> emissions).

The SO<sub>2</sub> emissions intensity of generation—both at a fossil fuel level and an overall systems level (all generation types)—also dropped slightly similar to absolute emissions trends. While overall coal-based generation remained consistent with the previous year, several companies reduced their overall coal consumption, resulting in a modest decrease in SO<sub>2</sub> emissions and intensity.

**FIGURE 3. CEA members have reduced SO<sub>2</sub> emissions and intensity since 2009**



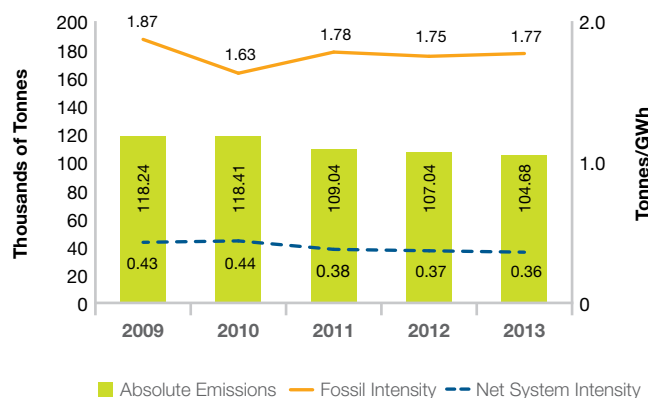
Note: Figures are based on net generation of existing CEA generation companies. System intensity (all generation sources) would be even lower if all electricity producers in Canada were included.



## NITROGEN OXIDE EMISSIONS

In 2013, CEA members were responsible for approximately 104.68 thousand tonnes of NO<sub>x</sub> emissions, a decrease of 2.2 per cent compared to 2012 levels (Figure 4). Since 2009, CEA members have reduced NO<sub>x</sub> emissions by 11.5 per cent through a combination of factors, including the increased use of emission-abatement technologies such as low NO<sub>x</sub> burners, fuel switching and the decommissioning of aging coal-fired facilities. While CEA members have continued to improve their overall system intensity, fossil intensity has fluctuated due to use of higher-emission intensive fossil fuel units typically used for meeting peak demand.

**FIGURE 4. CEA members have reduced NO<sub>x</sub> emissions and intensity since 2009**



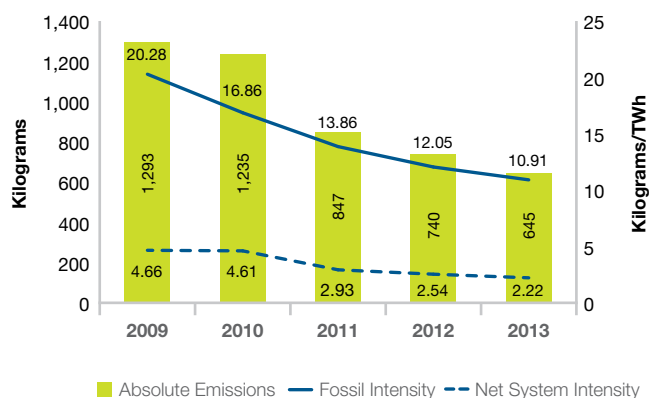
Note: Figures are based on net generation of existing CEA generation companies. System intensity (all generation sources) would be even lower if all electricity producers in Canada were included.

## MERCURY EMISSIONS

In 2012, the electricity sector as a whole was responsible for about 860 kilograms of mercury emissions in Canada, representing 24 per cent of the country's total mercury releases.<sup>5</sup> CEA members were responsible for 86 per cent of the sector's overall mercury emissions that year (740 kilograms).

In 2013, CEA member mercury emissions declined to 645 kilograms, a 12.9 per cent reduction (Figure 5). Members have cut their mercury emissions by 50.1 per cent since 2009, again through reduced coal-fired generation and the continued use of innovative technologies such as activated carbon injection systems and front-end additives (e.g., calcium chloride) that oxidize mercury to make it more easily captured.

**FIGURE 5. CEA members have reduced mercury emissions and intensity since 2009**



Note: Figures are based on net generation of existing CEA generation companies. System intensity (all generation sources) would be even lower if all electricity producers in Canada were included.

## Responding to and preventing priority spills

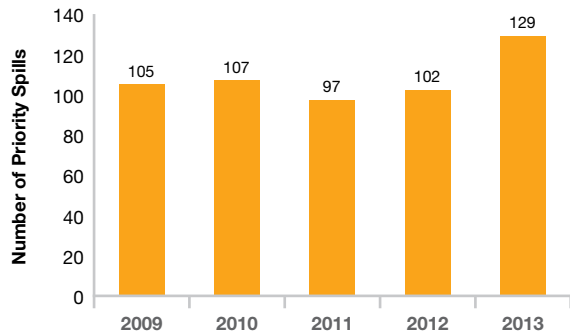
While different jurisdictions in Canada have different definitions for priority spills, CEA defines them as petroleum spills of more than 500 litres; spills that contain more than one gram of polychlorinated biphenyls (PCBs); or any volume of petroleum-based or PCB-contaminated substance that enters a water body. PCBs are organic compounds used as coolants and lubricants in transformers, capacitors and other electrical equipment. They require special handling, storage and disposal due to their potentially adverse impact when released into the environment.

5 Environment Canada. (2012). *National Pollutant Release Inventory and air pollutant emission summaries and trends*. Retrieved from [www.ec.gc.ca/npri](http://www.ec.gc.ca/npri).

## PRIORITY SPILLS

The incidence of priority spills continues to fluctuate from year to year, with 129 reported in 2013, an increase of 26.5 per cent over 2012 (Figure 6).

**FIGURE 6. Priority spills remain a challenge for the sector to address**



Spills are often caused by operator errors, aging transformers, human errors, vandalism and weather-related incidents. When spills do happen, CEA member companies respond promptly, following all applicable procedures and regulations to minimize any potential impact to the environment and remediate the affected areas.

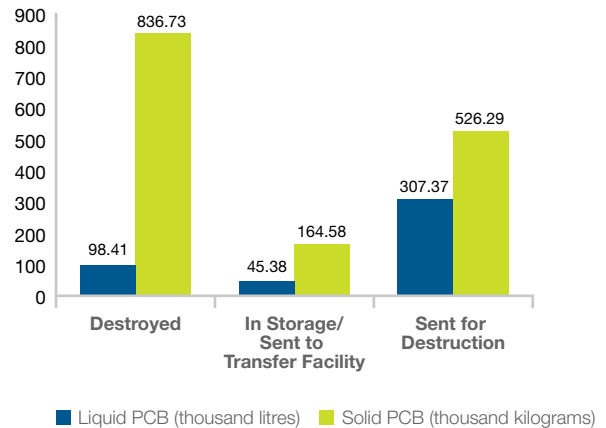
CEA members are in the process of phasing out older equipment and have also invested in regular inspections and risk assessments, emergency spills response training and secondary liquid containment systems. As priority spills have been identified as a key area for improvement, further discussions within CEA will take place in the year ahead.

## PCB MANAGEMENT

CEA member companies continue to make progress on fulfilling federal regulations on the amount of PCBs destroyed, stored or sent for disposal in either liquid or solid form. As Figure 7 shows, CEA members continued to

phase out PCBs in 2013 to comply with federal regulations. The electricity sector is committed to phasing out PCBs and meeting the federal government regulations within the specified timeframes.

**FIGURE 7. CEA members on track to phase out PCBs in compliance with federal regulations**



## Ensuring compliance with the law

As good corporate citizens, compliance with the law is expected of CEA members. In 2013, only one CEA member company reported a non-compliance fine for violating applicable federal/provincial/territorial laws and regulations, a decrease from the five fines reported the year before. Members also received 14 non-compliance notices and orders ranging from incidents of negative environmental impact to administrative violations. Companies receiving notices or orders took immediate action to meet all compliance requirements and prevent future violations.

## SECTOR SUCCESSES

# Innovation investments yield environmental results

Across the country, CEA members are working to minimize the electricity sector's environmental impact.

### **ALTALINK BUILDS A CLEANER, GREENER VEHICLE FLEET**

Of the 159 vehicles in AltaLink's fleet, 77 are hybrid, electric or utilize green diesel technology and the company is constantly investing in new technologies and equipment to improve efficiency. One such technology can be found in AltaLink's hybrid plug-in bucket truck. Rather than relying on the truck's engine, the bucket is powered by a plug-in battery. This eliminates idling time at the jobsite, which reduces emissions as well as fuel consumption.

### **ATCO POWER HELPS DEVELOP AND IMPLEMENT NEW STANDARDS FOR MERCURY EMISSIONS REDUCTIONS**

Beginning in 2002, ATCO Power worked closely with industry, government and environmental organizations to develop mercury standards for Alberta's electricity sector. It has since implemented and optimized the mercury emission controls (which inject activated carbon into flue gas to capture mercury) at its two coal-fired generation plants. By changing the injection points and the type of carbon used, ATCO Power achieved a capture rate of greater than 80 per cent in 2013, resulting in a 26 per cent decrease in mercury emissions relative to 2012.

### **REMOVING HARMFUL ANHYDROUS AMMONIA AT ENMAX'S CALGARY ENERGY CENTRE**

ENMAX Corporation's Calgary Energy Centre (CEC) uses selective catalytic reduction (specifically, the injection of anhydrous ammonia) to decrease NO<sub>x</sub> emissions. With the land around the facility becoming increasingly developed, ENMAX decided to change the type of ammonia it uses to reduce the area of the emergency zone required in the event of an ammonia release. The CEC is the first generation facility in Canada to replace 99 per cent anhydrous ammonia with 19 per cent aqueous ammonia, a safer mix that minimizes potential impacts on people and the environment.

### **ENHANCING EPCOR'S RESPONSE TO SPILLS AND RELEASES**

In 2013, EPCOR Utilities Inc.'s Spill Team participated in a pair of training scenarios to improve the way the company's incident command system structure responds to PCB spills and sulphur hexafluoride (SF<sub>6</sub>) releases. These exercises helped confirm the current state of emergency preparedness at EPCOR, improve awareness and knowledge of systems and procedures within the Spill Team, and provided a forum for team members to discuss emergency response procedures with the company's environmental advisor.



Some of AltaLink's vehicles, including a plug-in hybrid bucket truck.  
*Photo courtesy of AltaLink.*



ENMAX Corporation's Calgary Energy Centre.  
*Photo courtesy of ENMAX Corporation.*



River Spill Responders train at the Churchill Falls Tailrace using peat moss, a commonly used method to simulate oil in training exercises. *Photo courtesy of Nalcor Energy.*

### **REUSING POLES AND TRANSFORMERS AT FORTISALBERTA**

Each year, more than 1,000 wood poles less than five years old and 550 transformers less than 10 years old are removed from FortisAlberta Inc.'s distribution system as a result of damage, system upgrades and road widening. In 2013, FortisAlberta initiated a Material Reuse Program, resulting in the reuse of 42 per cent of poles and 51 per cent of transformers. The program returned a reduced environmental footprint and savings of more than \$1 million in inventory purchases.

### **MANITOBA HYDRO IMPLEMENTS ACTION PLAN ON PCBs**

Manitoba Hydro continued to make progress on its action plan to fulfill the requirements of the federal regulations on PCBs and oil-filled equipment. Its plan includes the identification of all bushings that contain (or may contain) at least 500 ppm of PCBs so that these bushings can be replaced by the end of 2014. The bushing identification process will also serve to better align records within Manitoba Hydro's asset management systems.

### **MARITIME ELECTRIC IS AHEAD OF SCHEDULE ON PCB END-OF-USE COMPLIANCE**

As part of its Health, Safety and Environmental Management System, Maritime Electric Company, Limited has launched a program to identify the location of any remaining mercury

vapour street lamps that may contain PCB-contaminated components and has set targets to ensure end-of-use prior to 2025. The company also has a strategy in place to ensure compliance with regulatory end-of-use guidelines for pole mount transformers that may contain PCBs. These actions position Maritime Electric to be compliant well before the federal government's 2025 timeline.

### **NALCOR ENERGY UPDATES RESPONSE PLAN FOR RIVER AND RESERVOIR SPILLS**

Over the past few years, Nalcor Energy has put considerable effort into limiting the likelihood of oil being discharged into the Churchill River from its powerhouse, in particular, by implementing prevention and response procedures and equipment. Last year, Nalcor Energy revised its River and Reservoir Spill Response Plan to better align with national standards for emergency planning. The updated plan now includes a quick-reference flowchart that makes it easier for employees to understand their roles and responsibilities in the event of a spill.



# PRINCIPLE 2: STEWARDSHIP AND BIODIVERSITY



## Manage the environmental resources and ecosystems that we affect to prevent or minimize loss and to support recovery

Generation, transmission and distribution operations can have wide-ranging impacts on nearby plants and animals. Minimizing that impact requires working with government, conservation authorities and other stakeholders on biodiversity protection, water quality, watershed and vegetation management, and other ecosystem-related issues.

### Conserving biodiversity and protecting ecosystems

CEA members are committed to the conservation of biodiversity and protection of Canada's ecosystems. While some impacts are unavoidable due to large-scale operations and construction of new facilities and power lines, CEA members are using best practice management approaches and technologies to minimize their impact on plants, species and their habitats. Highlights in this area from 2013 include the use of digital mapping tools to minimize the environmental footprint of new construction, biodiversity monitoring and research, and conservation and habitat restoration projects.

Alongside these efforts, CEA and its members continue to support policy and regulatory activities under the Species at Risk Act, the Migratory Birds Convention Act and the Fisheries Act, the main federal laws to protect terrestrial and aquatic species. CEA and its members will continue to dialogue with government and other conservation groups to help develop management approaches to better protect species under these Acts and enhance the recovery of affected species.

### Reporting on biodiversity performance

CEA members have been reporting their biodiversity performance against a series of indicators (Table 1) since 2010, the United Nation's International Year of Biodiversity. While member companies continue to

assess their impact on biodiversity, set performance measures and partner with external conservation organizations, they also recognize that further improvements can be made.

As part of the five-year review of the Sustainable Electricity program, CEA members will reassess these indicators and performance trends to ensure they continue to measure, report and improve their overall performance on the conservation of biodiversity.

**TABLE 1. Integration of biodiversity considerations by CEA members**

	2012	2013
Analyze corporate activities with regard to their impact on biodiversity	80%	77%*
Responsible individual within the company to steer all activities in the biodiversity sector and report to the Management Board	60%	67%
Measurable biodiversity objectives that are monitored and adjusted every two to three years	50%	57%
Publish activities and achievements on biodiversity in an annual report	60%	60%
Explore the potential for cooperation with stakeholders with the aim of deepening dialogue and improving the corporate management system vis-à-vis biodiversity	73%	77%

\* Note: This decline is due to a methodological/definitional change in how this data is collected.

## SECTOR SUCCESSES

# Protecting Canada's natural beauty

CEA members are adopting innovative new solutions to manage the sector's impact on our country's ecosystems and biodiversity.

### **ATCO ELECTRIC PLANS BETTER TRANSMISSION ROUTES USING DIGITAL MAPPING**

Building new transmission lines requires balancing environmental features with the footprint of the infrastructure. To guide its planning, ATCO Electric launched the Spatial Environmental Evaluation Dataset (SEED) Program, which uses digital mapping to give planners a visual representation of wetlands, water bodies, wildlife ranges, soil conditions, vegetation and existing land-use activities such as parks and agriculture. By making it easier to process vast amounts of ecological data, SEED is helping ATCO Electric identify sensitive areas and implement the necessary measures to minimize the environmental footprint of its transmission routes.

### **COLUMBIA POWER IS CONSTRUCTING A NEW, ENVIRONMENTALLY-RESPONSIBLE TRANSMISSION LINE**

As part of the Waneta Expansion Project, Columbia Power Corporation constructed a 10-kilometre transmission line through a rare ecotype in Southern British Columbia. A number of measures were implemented to minimize environmental impact, including restricting construction activity during the nesting season of the endangered yellow-breasted chat. Through the Waneta Terrestrial Compensation Program, Columbia Power is providing \$50,000 per year over seven years to projects supporting conservation and habitat restoration in the area of the transmission line.

### **FORTISBC EMPLOYEES VOLUNTEER THEIR TIME TO PROTECT ENDANGERED STURGEON**

In May 2013, FortisBC Inc. employees volunteered at a sturgeon release event held by the Upper Columbia White Sturgeon Initiative to help teach the public about the importance of preserving endangered sturgeon. The FortisBC PowerSense group was on hand to help visitors understand the direct link between saving energy and protecting endangered species; increased energy demand increases the likelihood that new power generation facilities will have to be constructed to meet this demand, potentially putting other species at risk.



Construction of the Waneta Expansion transmission line.  
Photo courtesy of Columbia Power Corporation.



Newfoundland Power employee reviewing drawings for passage for juvenile salmon. *Photo courtesy of Newfoundland Power Inc.*

## NEWFOUNDLAND POWER CREATES SAFE PASSAGE FOR SALMON

In 2012, Newfoundland Power Inc. initiated construction of a salmon passage around its Rattling Brook Hydroelectric Development. Last year, downstream passage was achieved, with approximately 300 juveniles and a number of adults observed leaving the reservoir. As part of this project, Newfoundland Power is also required to provide upstream passage of adult salmon. A truck and transport method will be used, with the first adults moving from the plant tailrace to the upstream reservoir in 2014.

## ONTARIO POWER GENERATION RECOGNIZED FOR WOODLAND AND WETLAND CONSERVATION

Ontario Power Generation's Nanticoke Generating Station was nominated in 2013 by the Wildlife Habitat Council for its *Corporate Habitat of the Year Award* and was also a finalist in the *Wings Over Wetlands* and *Prairies for Tomorrow* award categories. These nominations were in recognition of Nanticoke's ongoing biodiversity efforts, including the creation of a five-acre wetland on site, an area that was



A five-acre wetland near OPG's Nanticoke Generation Station. *Photo courtesy of Ontario Power Generation Inc.*

quickly colonized by birds, amphibians and turtles. Through its Corporate Biodiversity Program, Ontario Power Generation has helped plant more than 5,777,000 native trees and shrubs in strategic locations across Southern Ontario since 2000, expanding key forested areas and promoting the recovery of wildlife at risk.

## TRANSCANADA TAKES A HANDS-ON APPROACH TO MONITORING IMPACT ON ANIMAL BEHAVIOUR

Actively supporting research programs contributing to habitat conservation and restoration, TransCanada uses lidar (light detection and ranging) and GPS data to gain a better understanding into how caribou and grizzly bears are responding to linear features in the environment, including power lines. Looking to move from expensive 'catching and collaring' to more non-invasive approaches of collecting predation data, in 2013, TransCanada launched a program to see if isotope signatures in bear hair can be used to identify caribou consumption.



# PRINCIPLE 3: CLIMATE CHANGE



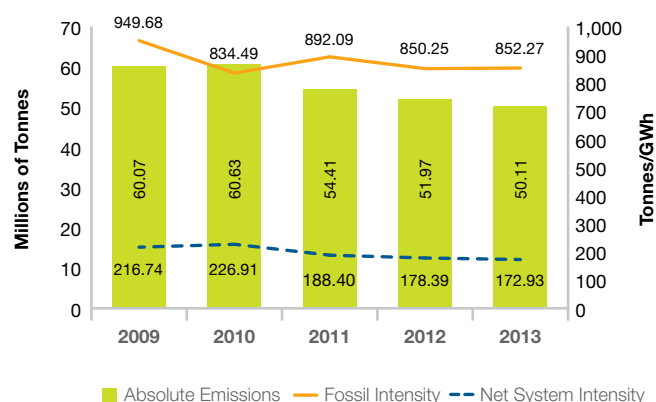
## Manage greenhouse gas emissions to mitigate the impact of operations on climate change, while adapting to its effects

CEA members know the electricity sector has a significant opportunity to mitigate the effects of climate change by reducing greenhouse gas emissions and to better respond to the effects of changing temperatures and extreme weather by adapting their systems and processes.

### Reducing greenhouse gas emissions

The electricity sector is responsible for about 12 per cent of all carbon dioxide equivalent (CO<sub>2</sub>eq) emissions in Canada (approximately 86 million tonnes (Mt)).<sup>6</sup> CEA members continued to reduce their CO<sub>2</sub>eq emissions in 2013, reaching an all-time low of 50.11 million tonnes (Mt) (Figure 8). This reduction of CO<sub>2</sub>eq emissions by 3.6 per cent from 2012 was primarily due to reduced coal use and increased integration of renewable and distributed generation. In total, these factors have helped lower annual CO<sub>2</sub>eq emissions by 16.6 per cent from 2009 levels. Several CEA members are also pursuing new technology applications to further cut their emissions, including carbon capture and storage.

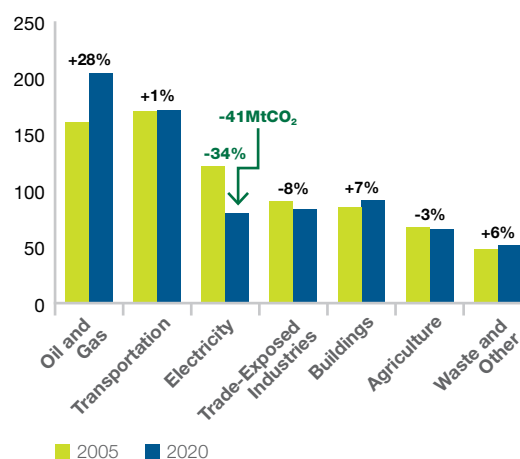
**FIGURE 8. CEA members are decreasing CO<sub>2</sub>eq emissions and intensity each year**



Note: Figures are based on net generation of existing CEA generation companies. System intensity (all generation sources) would be even lower if all electricity producers in Canada were included.

The electricity sector is the only economic sector in Canada to deliver significant reductions in greenhouse gas emissions. As Figure 9 indicates, by 2020, Environment Canada projects that the electricity sector as a whole will reduce CO<sub>2</sub>eq emissions by 41 million tonnes (Mt), accounting for approximately one-third of Canada's total 2020 GHG reduction target of 17 per cent from 2005 levels under the Copenhagen Climate Change Accord signed by all major developed and developing countries in 2009.

**FIGURE 9. The electricity sector is expected to lead the way in CO<sub>2</sub>eq reductions**



Source: Environment Canada, Addressing Climate Change and Air Quality, [www.ec.gc.ca](http://www.ec.gc.ca).

Continued investments in clean generation technologies and renewable energy will be key to cutting CO<sub>2</sub>eq emissions even further. In 2013, more than 5,935 gigawatt-hours of electricity from wind, solar and other renewable sources were purchased from non-CEA member companies.

6 Environment Canada. (2014). *Greenhouse gases by economic sector*. Retrieved from [www.ec.gc.ca/indicateurs-indicators](http://www.ec.gc.ca/indicateurs-indicators).



# CEA and Plug'n Drive introduce Electric Vehicle Dealership Awards

The Canadian Electricity Association, in partnership with Plug'n Drive, has introduced Canada's first awards program for recognizing Canadian car dealerships that demonstrate leadership in the sale of electric vehicles. The awards include the Leading Battery Electric Vehicle Dealership Award, the Leading Plug-In Hybrid Dealership Award and the Electric Vehicle Dealership Inspiration Award.

Visit [www.electricvehicleawards.ca](http://www.electricvehicleawards.ca).



With the increase in non-emitting generation capacity, the electricity sector is set to continue its leading role in reducing greenhouse gas emissions over the long-term.

## Making the system more resilient

If 2013 was any indication, climate change and extreme weather events will have a considerable impact on the future reliability and resiliency of Canada's electricity system. Today, only about 57 per cent of CEA member companies have adaptation plans in place or have taken steps to analyze the potential vulnerability of their operations to climate change (Table 2). Although CEA has established an Adaptation Working Group to further advance this issue, there is still room for improvement.

**TABLE 2. Integration of climate change adaptation issues by CEA members**

	2012	2013
Companies with plans in place to adapt to the impacts of climate change	50%	57%
Companies that conduct research or analysis to assess potential vulnerability to climate change and to identify adaptation strategies	50%	57%
Companies that identify/publish activities and achievements in reference to adaptation in the company's annual, environment, and/or corporate social responsibility report	40%	37%
Companies that explore the potential for cooperation with institutions, non-governmental organizations, and/or government institutions with the aim of deepening dialogue and continuously improving the corporate management system vis-à-vis climate adaptation	53%	53%

## SECTOR SUCCESSES

# Long-term thinking is a key to sustainability

CEA members are implementing new technologies and forming new partnerships to reduce emissions and adapt to climate change.

### **CARBON CREDITS HELP THE CITY OF MEDICINE HAT OFFSET THE IMPACT OF POWER GENERATION**

Each year, the City of Medicine Hat's landfill composting program turns 20,000 tonnes of organic waste into finished compost. Removing this material from the landfills reduces the amount of methane generated, and reduces CO<sub>2</sub>e emissions by 13,000 tonnes annually. In addition, because bio-solids and yard waste were previously tipped and buried in the landfill, removing this material qualifies for carbon credits which are used to offset carbon emissions and other environmental impacts from the City-owned electric generation facility.

### **ECOLOGO CERTIFICATION RECOGNIZES BROOKFIELD RENEWABLE'S LOW-EMISSIONS PORTFOLIO**

In 2013, 90 per cent of the energy generated by Brookfield Renewable Energy Group's assets located in Canada came from low-emission hydroelectric and wind facilities. Harnessing naturally abundant renewable energy sources is the prime focus of Brookfield Renewable's portfolio. As of 2013, a total of 21 Brookfield hydroelectric facilities in British Columbia, Ontario and Quebec have received EcoLogo certification, a globally recognized standard indicating the highest level of adherence to rigorous and scientifically relevant environmental criteria.

### **MANITOBA HYDRO STUDIES THE IMPACT OF CLIMATE CHANGE ON THE ELECTRICITY SECTOR**

Manitoba Hydro is participating in four projects under Natural Resources Canada's Adaptation Platform, which brings together government and industry to collaborate on climate change adaptation. These projects include developing a methodology for projecting climate change impacts on storms and floods for dam safety, incorporating the results of climate change impact assessments in new

infrastructure development, and contributing to a two-year national study looking at how increasing temperatures can affect future energy demand across Canada.

### **MARITIME ELECTRIC FINDS BETTER WAYS TO INTEGRATE WIND INTO THE GRID**

In 2013, Maritime Electric Company, Limited built the infrastructure required to connect a new 30 MW wind farm on Prince Edward Island, a project that will reduce greenhouse gas emissions and increase the proportion of PEI's electricity that comes from renewable sources. Maritime Electric continues to be involved with PowerShift Atlantic, a coalition of utilities, government and academic institutions focused on finding better ways to integrate wind energy into the electricity grid, with pilot programs for residential and commercial customers underway across the Maritimes.



For three weeks in December 2012, unseasonably warm temperatures accompanied by freezing rain and hoar frost caused excessive ice accumulations on distribution lines in Brandon area, Manitoba, keeping all available crews extremely busy. Photo courtesy of Manitoba Hydro.



TransCanada Corporation's Ontario solar facility.  
Photo courtesy of TransCanada.

### **NB POWER INSTALLS FIRST-OF-ITS-KIND ELECTRIC THERMAL STORAGE TECHNOLOGY**

Electric thermal storage (ETS) technology, which converts off-peak electricity into heat that can be stored for later use, could help integrate renewables in a more cost-effective way by improving the way peak demand is managed. To evaluate the potential of ETS equipment in residential settings, New Brunswick Power Corporation installed approximately 500 ETS room heaters in customers' homes across the province, the first large-scale demonstration of this unit in North America.

### **NTPC DELIVERS NORTHERN CANADA'S FIRST-EVER LNG FACILITY**

In 2013, Northwest Territories Power Corporation began construction of Northern Canada's first liquefied natural gas (LNG) plant which will provide customers throughout the region with a cleaner, more affordable power source. By using natural gas instead of diesel to generate power for the town of Inuvik and its surrounding communities, this facility is expected to eliminate almost 6,000 tonnes of CO<sub>2</sub>eq emissions from the atmosphere each year.



NTPC delivers Northern Canada's first-ever LNG facility. Photo courtesy of Northwest Territories Power Corporation.

### **NOVA SCOTIA POWER COMMISSIONS BIOMASS CO-GENERATION FACILITY**

In July 2013, Nova Scotia Power Inc. commissioned a 60 MW biomass co-generation facility adjacent to a pulp and paper mill in Port Hawkesbury. The project is another aspect of Nova Scotia Power's strategy to diversify its generation portfolio and meet renewable energy requirements. The facility will supply roughly three per cent of Nova Scotia's electricity needs and act as a source of firm renewable energy that will also help back up the province's extensive network of new, intermittent wind generation.




# Social Performance

**ENGAGING WITH THE COMMUNITIES WHERE WE OPERATE**

People and communities are key components of the sector's sustainability strategy. CEA members strive to provide safe and respectful workplaces for their employees, and to build quality relationships with Aboriginal Peoples and the communities in which they operate, meeting Canadians' expectations of what it means to act as responsible corporate citizens.


In 2013, efforts on this front included training and communications initiatives, stakeholder engagement and collaborations with communities, including Aboriginal communities, across the country.

**93%** 

OF MEMBER COMPANIES  
HAVE A PUBLIC ELECTRICAL  
EDUCATION PROGRAM

**100%** 

OF MEMBER COMPANIES PROVIDE  
EMPLOYEE ILLNESS PREVENTION  
AND KNOWLEDGE PROGRAMS

**93%** 

OF COMPANIES HAVE A PROCESS  
FOR IDENTIFYING STAKEHOLDER  
CONCERNS AND OPPORTUNITIES

*Green indicates neutral or improved performance.*





# SaskPower: Raising the bar for Aboriginal relations

In 2013, SaskPower executed a five-pillar strategy to integrate its Aboriginal relations mandate across all of its business areas, a 'whole company' approach that is helping the organization create new educational, employment and business opportunities for Aboriginal Peoples, communities, and businesses touched by its operations.

All business areas across SaskPower helped execute more than 20 corporate initiatives over the past year. The results of these efforts included:

- Purchasing \$13 million of goods and services from Aboriginal vendors as a result of a new Aboriginal procurement policy
- Establishing Canada's first master agreement between a power utility and the First Nations Power Authority for the establishment of a portfolio of First Nations-led power generation facilities
- Recruiting 15 full-time, permanent Aboriginal employees (approximately five per cent of new hires)
- Helping 51 Aboriginal Peoples complete training programs so they can be involved in future SaskPower projects
- Providing \$1.2 million to Aboriginal education programs
- Contributing more than \$60,000 to 21 Aboriginal events across Saskatchewan



The 2013 participants from the Island Falls Hydroelectric Station High School Graduate Program. **Pictured from left to right:** Corey Bear, Clorissa Morin, Marianne McCallum, Reina McCallum.  
*Photo courtesy of SaskPower.*

## A commitment to partnership

These projects were made possible through dozens of community consultations and by committing to formal, documented partnerships with several different Aboriginal communities. For example, engagement with eight First Nations groups, one tribal council and a commercial association led to the creation of three new formal partnerships with Aboriginal communities, as well as the initiation of a fourth partnership outlining how SaskPower will work together with that community over the next three generations. One-on-one interactions are also incredibly important; last year, four SaskPower employees volunteered to mentor four Aboriginal youth from a local inner-city elementary school.

By developing and improving the competency of Aboriginal relations across all of its business functions, as opposed to relegating it to a single business area, SaskPower is aiming to not only optimize its impact on Aboriginal communities but also to raise the bar on how power utilities across Canada can successfully engage with Aboriginal Peoples.

## FACING FORWARD

Customers, from big businesses to families at home, have more control over their energy use today thanks to new smart technologies. That makes the end-user community an active shaper of the electricity system, blurring the traditional boundaries between utilities, the grid and customers.

As part of its vision for 2050, the industry aims to leverage these modern technologies to support two-way electron flows, emerging forms of generation and flexible demand response, all of which will make the system more agile, efficient and responsive to community needs.

Visit [www.Vision2050.ca](http://www.Vision2050.ca).

# PRINCIPLE 4: HEALTH AND SAFETY



## Provide a safe and healthy workplace for our employees and contractors

Through training and communications, supported by strong leadership and constantly evolving management systems, CEA members are ensuring the health and safety of not only their employees and contractors, but also the people living in the communities in which they operate.

### Working toward the zero-injury workplace

The goal of every CEA member is to create an injury-free workplace. In striving to reach zero time lost due to injuries, utilities are following four main strategies:

#### **BUILD BETTER HEALTH AND SAFETY MANAGEMENT SYSTEMS**

CEA members maintain health and safety management systems consistent with external standards such as OHSAS 18001 and CSA Z1000. Following the 'Plan-Do-Check-Act' methodology for implementing safety processes and improving the performance of their management systems, utilities continue to focus on providing their employees with training and communications on health and safety responsibilities, and committing to more thorough safety assessments and audits (including third-party audits).

#### **REDUCE HEALTH AND SAFETY RISKS**

Utilities are focusing sharply on prevention, looking specifically at ways to reduce the more common workplace injuries resulting from slips, trips, falls, strains, and sprains caused by repetitive motions and overexertion. Ongoing efforts in this area include establishing new programs and campaigns to educate employees on how to reduce musculoskeletal injuries, providing access to ergonomic assessments, conducting

research into the causes of (and potential technological solutions for) these kinds of injuries, and supporting employees' overall health and fitness.

#### **BUILD A STRONG SAFETY CULTURE**

Achieving safety excellence requires the buy-in and engagement of all employees. To build this 'safety culture', CEA members are updating their training and mentoring programs. These include enhancing the leadership skills of newly promoted supervisors, encouraging openness and accountability so employees report (and learn from) safety-related incidents, streamlining safe work processes and training requirements across their locations to ensure everybody is working to the same standards, and establishing employee-led health and safety committees.

#### **WORK TOGETHER AS AN INDUSTRY TO IMPROVE**

Since improving health and safety is a sector-wide effort, the CEA Occupational Health and Safety Committee works to develop new strategies and initiatives that will improve the overall health and safety performance of the sector. At the same time, utilities from various regions across Canada are also coming together to form consortia to raise awareness of public and workplace safety, including Alberta's Joint Utility Safety Team (JUST) and British Columbia's Cooperative Safety Program.

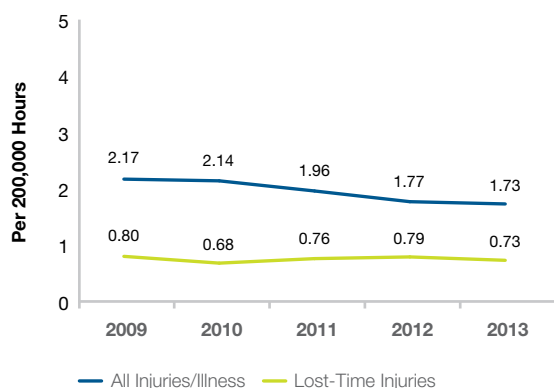
## Improving safety performance at work

Following the four strategies outlined above, CEA members made further progress in 2013 in reducing the number of injuries in the workplace. As Figure 10 shows, the composite all injury/illness frequency rate improved for the sixth consecutive year, down to 1.73 injuries per 200,000 hours worked (or 100 workers). This represents a decrease of 2.3 per cent from 2012, and a 20.3 per cent decrease in workplace injuries since 2009. Further improvements were also seen in the lost-time injury frequency rate (Figure 10), which was 0.73 injuries per 200,000 hours worked, a 7.6 per cent decrease from 2012 due to fewer employees requiring additional lost time for medical attention.

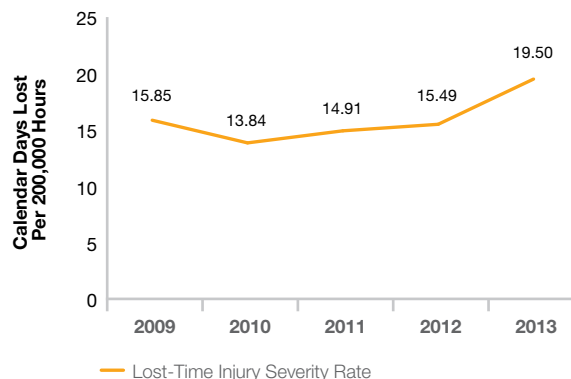
Unfortunately, the lost-time injury severity rate continued to climb, with 19.5 calendar days lost per 200,000 hours (Figure 11), an increase of 25.9 per cent over last year. While many of these injuries were a result of overextension or being struck by objects, a few companies also reported employee injuries requiring extended medical attention, resulting in an increase in lost calendar days.

While performance in some aspects continues to improve, members recognize the need to continuously improve their safety standards, communication and tracking of non-conformances.

**FIGURE 10. CEA members continue to reduce injury and illness frequency rates\***



**FIGURE 11. Lost-time injury severity rates continue to rise\***



\* Note: All historical and current occupational health and safety performance figures include data from CEA members plus Hydro Québec. While Hydro Québec does not report directly to the Sustainable Electricity program and its core indicators, it does participate in the CEA Health and Safety Program.

## Keeping the public safe

CEA members are committed to reducing the risks associated with public contact with electrical equipment. In 2013, nearly all member companies (93 per cent) reported having a public electrical education program, using marketing and advertising campaigns, public service announcements, classroom visits, and conference and trade show presentations and exhibits to promote power line and dam safety in their communities. These initiatives continued to be targeted at the sectors of the public most likely to be exposed to electrical equipment, including emergency responders, farmers, construction workers, contractors and children.

## SECTOR SUCCESSES

# Keeping safety top of mind

CEA members are using a number of different methods to ensure the safety of employees, contractors and the public.

### BC HYDRO STRENGTHENS IN-HOUSE TRAINING

As part of its commitment to embedding a consistent culture of safety throughout the entire organization, BC Hydro and Power Authority opened its new Trades Training Centre in 2013. By centralizing the design and delivery of all technical and trades training, this facility ensures all of BC Hydro's training programs are fully managed and delivered by its own employees using its own equipment, resulting in an improved training experience that better supports safe work practices.

### BUILDING A COMPLETE BRAND PLATFORM AROUND SAFETY AT CAPITAL POWER

To change the way its employees talk and think about safety, Capital Power Corporation launched its "Zero Means Everything" campaign in 2013. A unique internal safety brand platform and social marketing strategy that includes online videos, booklets, vehicle wraps and more, it focuses on both workplace safety and lifestyle safety, with the underlying message being that zero lost-time injuries means getting every employee safely home from work each and every day.

### EPCOR HOLDS SECOND ANNUAL CONTRACTOR SAFETY SUMMIT

An estimated 140 people from 35 organizations attended the 2013 Contractor Safety Summit to talk openly about the issues affecting every EPCOR Utilities Inc. employee and contractor. With a theme of "partnering for success", the agenda included presentations on Alberta's strategy for improving workplace health and safety, how EPCOR is improving its safety performance, EPCOR's standards on drug and alcohol management and incident reporting, and contractor management trends from both internal and contractor perspectives.

### NORTHWEST TERRITORIES POWER CORPORATION TEACHES KIDS HOW TO STAY SAFE

Every year, members of the Northwest Territories Power Corporation's Health and Safety Department visit Grade 5 classes across the territory to teach students about the importance of safety around electricity. Children learn about how electricity is created and brought to their homes, hear different ways to keep safe, and get a hands-on learning experience in the 'Hazard Hamlet', a live model that demonstrates potential electrical hazards and how to avoid them.



"Zero Means Everything" is a unique internal safety brand and social marketing strategy that is designed to change the way Capital Power employees talk and think about safety and achieve their zero lost-time injuries by 2015 target. *Photo courtesy of Capital Power Corporation.*



A branded Capital Power vehicle with the "Zero Means Everything" message to keep safety top of mind. *Photo courtesy of Capital Power Corporation.*





EPCOR's Underground Hazard Assessment Workshop.  
Photo courtesy of EPCOR Utilities Inc.

### **TAKING A CLOSER LOOK AT HIGH-RISK ACTIVITIES AT OAKVILLE HYDRO**

One of the best ways to improve safety performance is by effectively managing workplace risk. In 2013, Oakville Hydro Corporation completed an assessment of the 20 highest-risk work procedures identified by employee focus groups. The results will be used to redefine and enhance the safety procedures related to these high-risk activities. Externally, the corporation was honoured with the Infrastructure Health and Safety Association's President's Award for having worked 250,000 hours without a lost-time injury.

### **SASKPOWER SOWS THE SEEDS OF SAFETY AMONG FARMERS**

SaskPower ran two public awareness campaigns in 2013 (one during spring seeding and one during fall harvest) to remind farmers what to do if they contact a power line or come across a downed line. During the fall campaign, a social media component was added to engage younger farmers who tend to have lower awareness levels of electricity safety. To augment the advertising campaigns SaskPower provided safety demonstrations throughout the year using a live electrical display with actual power equipment.

### **TORONTO HYDRO UNVEILS HARMONIZED TAILBOARDS**

To standardize its safe work practices, Toronto Hydro Corporation harmonized five pre-job risk assessment forms (also known as tailboards) to create one common tailboard that incorporates all elements of a risk assessment, including detailed job steps and emergency planning. More than 3,585 hours of training were delivered to ensure employees knew about and could complete the new form. In late 2013, development started on an electronic version of the tailboard that could be completed on a laptop or tablet at the jobsite.

## **Ave Lethbridge steers Toronto Hydro's health and safety culture**



Ave Lethbridge, Executive Vice President and Chief Human Resources and Safety Officer, Toronto Hydro. Photo courtesy of Toronto Hydro Corporation.

Toronto Hydro Corporation believes that all injuries are preventable and that zero lost time is indeed possible. At the core of this endeavour is the Human Resources and Safety Program, led by Ave Lethbridge, Executive Vice President and Chief Human Resources and Safety Officer. Under her leadership, Toronto Hydro strives to mitigate the risk of injury through the adoption of international standards, continuous assessment, inspection and training.

"The aim of building a safety culture is to 'recalibrate' people's risk tolerance in all areas by improving their understanding of the nature and level of the risks in their environment, and by persuading them to accept accountability for managing the risks effectively within their organizational roles," says Lethbridge.

Toronto Hydro operates an integrated environment, health and safety management system that is OHSAS 18001 and ISO 14001 certified. By aligning its health and safety processes and support materials more effectively within its operational activities, the utility is helping its employees become more competent and motivated to improve health and safety in the workplace.

"When you're putting a system in place across the organization, it's critical to have everyone join you in that initiative," says Lethbridge. "Its success is dependent on everyone moving that system forward."

From 2008 to 2013, Toronto Hydro saw notable improvements in its occupational safety indicators: lost-time injury severity decreased by 89 per cent; and total recordable injury frequency decreased by 56 per cent. Due to this outstanding safety performance record, Toronto Hydro was recognized by the Infrastructure Health and Safety Association and the WSIB for having worked three million consecutive hours (September 2011 to July 2012) and then another 3.5 million consecutive hours (July 2012 to August 2013) without a lost-time injury.

# PRINCIPLE 5: WORKPLACE



## Support a fair, respectful and diverse workplace for employees and contractors

Sustainability is as much an internal priority for CEA members as it is an external one. That is why CEA member companies are striving to attract and retain diverse workforces, creating respectful and diverse workplaces, promoting employee wellness, and ensuring their workers have the training and skills they need to succeed.

### Building a more diverse workforce

CEA member companies strive to create a respectful workplace that is free from discrimination, harassment or violence and fully representative of the communities in which they operate. Last year, 70 per cent of members reported having a company-wide commitment to workforce diversity. While some members have had their commitment to diversity recognized with national awards and many have increased the level of diversity training offered to employees, there remains room for improvement with regard to diversity programs, policies, and the representation of women and minority groups in management and governance bodies. In 2013, women made up just 22 per cent of senior executives and 23 per cent of first-level management, relatively consistent with last year.

### Promoting employee health and wellness

By supporting better personal health practices and healthy workplace environments, CEA members are working to improve overall health and well-being among their employees. Doing so will, as an additional benefit, reduce the financial burden associated with healthcare costs and lost productivity. Continuing the progress made over the past few years, nearly all CEA members now have a variety of programs and initiatives in place to help their employees achieve healthier, more sustainable lifestyles, with many expanding the range of benefits offered in 2013 (Table 3).

**TABLE 3. Adoption of employee wellness initiatives by CEA members**

	2012	2013
Employee wellness subsidies/investments	100%	100%
Reimbursements for fitness facilities/programs	80%	87%
Employee illness prevention and knowledge awareness programs (e.g., on-site flu shot clinics, cholesterol screening, smoking cessation)	97%	100%
Employee newsletter or intranet site communication	100%	100%
Confidential family assistance programs (e.g., counselling services)	100%	100%
Support for employee volunteer initiatives	97%	97%
Flexible working hours	93%	97%

### Providing the right training for a changing workplace

In 2013, CEA members spent an average of 43.11 hours per employee on trades, technical and safety-related training. With the electricity sector undergoing an incredible change—not only in terms of the increasing integration of new technologies and renewable generation sources but also with regard to changing demographics—training and development is becoming increasingly important.

The continued use of apprenticeship programs, personal development plans, and partnerships with post-secondary institutions to support the next generation of electricity workers (with a heightened focus on attracting women to the trades) will be critical for ensuring employees have the right skills and knowledge going forward.

## SECTOR SUCCESSES

# Building a stronger, more diverse workforce

CEA members across Canada are continuing to make significant investments in employee diversity, wellness and training.

### BC HYDRO FOCUSES ON SCREENING AND PREVENTION

BC Hydro and Power Authority's Health and Recovery Services is committed to the health and well-being of its workforce. In 2013, it delivered more than 600 health screens to employees, measuring blood pressure and cholesterol and identifying risks for heart disease and diabetes. It also partnered with the BC Cancer Agency to deliver three days of mammography screening at two different work locations. In addition, 45 workshops were delivered across the province educating employees on how to manage stress, eat healthier and reduce back pain.

### ENMAX NAMED ONE OF CANADA'S BEST DIVERSITY EMPLOYERS

For the third year in a row, ENMAX Corporation was recognized as one of Canada's Best Diversity Employers. It also received the 2013 Alberta Business Award of Distinction for Employer of Persons with Disabilities. Both awards reaffirm the company's continued commitment to building a diverse, respectful and inclusive culture, which includes work experience programs to help immigrants, persons with disabilities, visible minorities and Aboriginal Peoples gain entry to the workforce; an employee-led women's network; and diversity awareness training for employees.

### HYDRO ONE IS WORKING TO ATTRACT MORE WOMEN TO THE TRADES

Hydro One Inc. has partnered with Algonquin College to develop the Women into Electrical Engineering Technology program, a unique venture aimed at increasing the number of women in the skilled trades. Not only is Hydro One contributing financial support to the 22 women enrolled in the College's Electrical Engineering Technical/Technologist program, it is also providing work-related co-op terms in its facilities so the students can gain a deeper practical application of the qualifications they are working toward.

### HYDRO OTTAWA DEVELOPS NEW DIVERSITY PLAN

Hydro Ottawa published its 2014–2016 Diversity Plan last year, which aims to create and support a workforce that is reflective of the diversity in the communities it serves. Stemming from this plan, Hydro Ottawa engaged in three targeted initiatives to lay a stronger foundation of diversity and inclusion within the company: it participated in the Capital Pride Parade and a flag-raising ceremony; piloted cultural competency training for managers; and established co-op partnerships with local high schools.



Posing on behalf of female employees at Hydro One is Amy Pavao.  
Photo courtesy of Hydro One Inc.



Kim Trimble is one of many skilled women working at Hydro One.  
Photo courtesy of Hydro One Inc.





Nalcor Energy's Wellness Works program offers an incentive to encourage employees to be smoke free. Photo courtesy of Nalcor Energy.

### **BUTTING OUT AT NALCOR ENERGY**

Nalcor Energy's Wellness Works program offers a variety of health education, awareness and promotions to help employees achieve their personal wellness goals. Because research shows that quitting smoking is more successful when smoking cessation aids are coupled with support services, in 2013 Nalcor partnered with Smokers' Helpline to create the Smoke-Free Living Program. In addition, Nalcor reimburses employees for 100 per cent of the cost of smoking cessation products purchased when enrolled in the program.

### **NEWFOUNDLAND POWER MAKES A HEALTH CONNECTION WITH ITS EMPLOYEES**

As part of its 2013 Health Connection Program, Newfoundland Power Inc. issued a comprehensive health and wellness survey to its employees. The survey found that employees are ready and interested in improving their health and well-being. Its results will help prioritize the health and wellness concerns that need to be addressed, enhance existing programs and services, and inform the development of a new three-year action plan that will focus on employee fitness and mental health.

### **ONTARIO POWER GENERATION: A NATIONAL LEADER IN DIVERSITY**

In 2013, Ontario Power Generation Inc. (OPG) was honoured with the Workplace Diversity Champion Award from Electricity Human Resources Canada. In addition, the company was selected as one of the Best 50 Corporate Citizens in Canada by *Corporate Knights* magazine. Also, its Senior Vice President of People and Culture was named a Canadian Diversity Champion by the Women of Influence organization, and it was recognized by the Toronto Region Immigrant Employment Council for its commitment to reconnecting skilled immigrants to their career paths through mentorship and internship opportunities.

### **CLOUD-BASED LEARNING OPENS UP NEW POSSIBILITIES AT SASKPOWER**

In 2013, SaskPower replaced nine legacy systems with a new learning management module that leverages the latest advances in cloud-based software. Instructional designers can greatly improve the learning experience for both employees and contractors, as the new system allows for more interactive content as well as more innovative course design and delivery options (including access from mobile devices).

### **TORONTO HYDRO IS BUILDING UP THE WORKERS OF TOMORROW**

Toronto Hydro Corporation has worked with Georgian College since 2010 to help shape its Engineering Technician/Technologist program curricula, a collaboration that ensures students graduate with the necessary proficiencies to fulfill positions at the utility and minimizes the amount of on-the-job training required as graduates enter the workforce. Toronto Hydro also provides scholarships to Ryerson University and Georgian College students in the fields of engineering, business, information technology and health sciences.

### **NOVA SCOTIA POWER IS HELPING POWER ENGINEERS OBTAIN FIRST-CLASS CERTIFICATION**

Nova Scotia Power Inc.'s new First-Class Power Engineer Program is designed to encourage second-class power engineers to continue their training and education, and to support employees in obtaining their first-class certification. Those accepted into the program receive financial support for exam fees and training-related materials, as well as regular guidance and support from their operations superintendent. Once an employee has been successful in obtaining first-class certification, Nova Scotia Power offers him or her a two-phase retention bonus.



# PRINCIPLE 6: COMMUNICATION AND ENGAGEMENT



## Communicate with and engage our stakeholders in a transparent and timely manner

Being transparent and reaching out to stakeholders on issues that matter to them, including how utilities impact their daily lives, are key business imperatives for CEA members. Communication and engagement are essential to preserving the ‘social licence’ to operate in Canadian communities.

### Providing timely, transparent information to the public

CEA members are committed to open communication with all stakeholders including customers, landowners, suppliers, community leaders, Aboriginal groups, non-profits and non-governmental organizations. Whether through face-to-face meetings, town hall sessions, open houses, facility tours, classroom presentations, social media or traditional marketing, CEA members are constantly working to improve the way they consult with their communities and share information about new infrastructure developments and their potential impacts. Improvements are also being made to member websites and call centres to enhance the quality of information offered about rate increases, power outages, and public safety and energy conservation initiatives.

In 2013, all CEA members once again reported having a documented process for responding to stakeholder concerns, and nearly all (93 per cent) had processes in place for proactively

identifying stakeholder concerns (Table 4). Although overall performance in this area has remained constant over the past few years, this past year saw an increase in the number of utilities with permanent stakeholder advisory groups and formal processes for improving stakeholder engagement.

**TABLE 4. Commitment to engaging with community stakeholders by CEA members**

	2012	2013
Formal stakeholder engagement policy or documented process	77%	77%
Process for identifying stakeholder concerns and opportunities	93%	93%
Documented process for responding to stakeholder concerns	100%	100%
Permanent stakeholder advisory committee or group	57%	63%
Process for ensuring continual improvement of stakeholder engagement	70%	83%

### Engaging stakeholders through social media

CEA and its members understand the importance of sharing the sector’s sustainability efforts and are using social media as a tool to both entertain and inform. About 84 per cent of CEA members have active Twitter and LinkedIn profiles, and 26 per cent have blogs. A number of members have written articles for the CEA blog to share information about their sustainability initiatives. For example, newly designated Sustainable Electricity Company AltaLink blogged about its reasons for seeking out the designation. CEA has actively used its LinkedIn account to share corporate news as well as each year’s Sustainable Electricity report.

In 2014, CEA will intensify its social media efforts to share even more information about its sustainability activities, values and plans to power the future.

Follow the blog at [www.PowerForTheFuture.ca](http://www.PowerForTheFuture.ca).

## SECTOR SUCCESSES

# Community engagement is a core focus

To build even greater trust with their customers, CEA members are partnering with communities and stakeholders in unique and innovative ways.

### **ATCO POWER CELEBRATES 20 YEARS OF SUCCESSFUL COMMUNITY ENGAGEMENT**

For the town of Hanna, Alberta, ATCO Power's Sheerness Generating Station is not only a major local employer but also a business with potential health, safety and environmental impacts. Twenty years ago, the Sheerness Community Environmental Advisory Committee was established, comprising 15 area residents and representatives from ATCO Power and a nearby coal mine. Annual meetings give ATCO Power the opportunity to meet with residents from the community about new initiatives, share information on environmental performance, and gather community feedback to inform its decision-making process. Students from the local High School also are invited to participate in these meetings.

### **WANETA EXPANSION PROJECT COMMUNITY DAY A GREAT SUCCESS**

For Columbia Power Corporation, providing access to its facilities is key to raising awareness of its projects and engaging stakeholders during construction. More than 1,500 people attended the Waneta Expansion Project Community Day, where staff led tours of key construction sites and provided information about project activities. An important focus was the inclusion of the project's First Nations communities, Ktunaxa Nation Council and Okanagan Nation Alliance. Columbia Power chartered a bus to transport First Nations community members to the event, and both Nations provided cultural presentations through dancing, drumming and song.

### **NEW PROMOTIONAL CAMPAIGN LEADS TO RECORD E-BILLING SIGN-UPS FOR HYDRO OTTAWA**

To increase adoption of e-billing, Hydro Ottawa launched the "Go Paperless" campaign, partnering with Trees Ontario to plant a tree for every new registration between September and December 2013. The campaign was promoted through channels including on-hold messages, social media and the utility's self-serve customer portal. Staff also attended Ottawa Senators games to promote e-billing and answer people's

questions. Over the course of the campaign, 14,414 customers registered for e-billing, helping Hydro Ottawa exceed its annual goal by 42 per cent.

### **MANITOBA HYDRO HOLDS EARLY CONSULTATIONS ON CROSS-BORDER TRANSMISSION**

Last year, Manitoba Hydro sent out 25,000 postcards to individuals as well as letters to over 140 stakeholder groups in the route planning area of the Manitoba-Minnesota Transmission Project, encouraging them to provide feedback online or by phone as to how they want to be engaged throughout the route selection and environmental assessment processes. The website also allowed individuals to sign up for email updates to ensure they are kept informed of the project's progress. Through this open and adaptive process, Manitoba Hydro saw an increased level of public engagement compared to its previous projects.

### **NB POWER LAUNCHES ONLINE LED STREETLIGHT MAPPING TOOL**

As part of its new Streetlight Replacement Project, New Brunswick Power Corporation launched an interactive online mapping tool that allows customers to see exactly where high-pressure sodium streetlights have been replaced by brighter, more energy-efficient LED lamps. In addition to communicating more openly with its customers, the mapping tool also allows paperless work orders to be given to contractors, who are able to use their laptops to instantly upload information on completed lamp replacements to NB Power's system.

### **NOVA SCOTIA POWER PROVIDES OPEN CHANNELS TO HEAR COMMUNITY CONCERNS**

In 2013, Nova Scotia Power Inc. established Community Liaison Committees (CLCs) for several of its thermal generating stations and one hydroelectric site, allowing community members living near these facilities to openly express their concerns by email, phone or in-person at CLC meetings, which are attended by senior facility staff.



Students learn how the electricity system can be safe, smart, and sustainable through a new 3D interactive display at Saskatoon Light & Power.  
*Photo courtesy of Saskatoon Light & Power.*

At the CLC for Tufts Cove Generation Station, for example, staff learned about several noise issues; in response, the utility installed sound-dampening equipment to reduce the noise levels of its combustion turbines.

### **SASKATOON LIGHT & POWER EXPANDS ITS SCHOOL OUTREACH PROGRAMS**

By offering tours of its Operations Centre, Saskatoon Light & Power is engaging Grade 6 and 9 students in discussions about how the electricity system can be safe, smart and sustainable. In 2013, the school tour was enhanced with a new 3D interactive mural featuring the latest information on smart meters, energy-efficient lighting and renewable energy. Saskatoon Light & Power also supported elementary students participating in the Education for Sustainable Development program, installing smart meters in their homes and energy monitoring equipment in their classrooms.

### **TORONTO HYDRO GOES THE EXTRA MILE TO BUILD NEW DOWNTOWN TRANSFORMER STATION**

Toronto Hydro Corporation is building its first downtown transformer station since 1955. Given the built-up nature of downtown, and the station's proposed location within a national heritage site, careful stakeholder management was critical for project approval. A local city councillor helped Toronto Hydro bring together neighbouring businesses, city facilities and residential tenants for monthly meetings, making it easier to resolve issues and build trust. Toronto Hydro also agreed to de-construct, brick-by-brick, a heritage building on site and rebuild it once the station is complete.

### **TRANSCANADA BUILDS COMMUNITY RELATIONS IN GREATER NAPANEE**

To answer local stakeholders' questions and concerns about its proposed Napanee Generating Station, TransCanada hired a local community relations representative and opened a community project office within the Town of Greater Napanee. These actions played a critical role in a multifaceted stakeholder engagement program, which included establishing a community advisory committee to solicit local input on building design and landscaping, hosting open houses to share project details, and completing an economic assessment to quantify the project's benefits to the local economy.

## **At Horizon Utilities sustainability keeps on truckin'**

In 2013, Horizon Utilities Corporation became the first utility in Canada to be designated as a Sustainable Electricity Company by the Canadian Electricity Association. On the heels of this honour, Horizon added the brand designation to all of its company vehicles, including bucket trucks.

"Horizon is proud of this designation and all that it represents," said Joseph Almeida, Director of Supply Chain Management at Horizon. "Our trucks are like travelling billboards. I can't think of a better way to demonstrate our commitment to fostering sustainable communities!"



Horizon Utilities employee Rick Hall takes the wheel in a bucket truck that displays the Sustainable Electricity Company designation. *Photo courtesy of Horizon Utilities Corporation.*

# PRINCIPLE 7: ABORIGINAL RELATIONS



## Communicate with and engage Aboriginal Peoples in a manner that respects culture and traditions

Collaboration and cooperation between CEA members and Aboriginal Peoples<sup>7</sup> foster mutually beneficial relationships and positive, meaningful environmental, social and economic outcomes for Aboriginal communities.

### Building relationships with Aboriginal Peoples

CEA members are committed to building positive, meaningful relationships with Aboriginal Peoples, particularly for those companies operating in close proximity to Aboriginal communities. CEA member companies value these relationships and have gone beyond any other economic sector in Canada to develop mutually beneficial business arrangements with Aboriginal Peoples over the last decade.

Some of the recent partnerships and activities have included entering into formal business ventures to ensure Aboriginal communities benefit from the educational, economic and environmental conservation opportunities associated with new infrastructure development. The effect has been to maximize Aboriginal involvement in projects through direct employment and subcontracting opportunities, provide training and summer employment to Aboriginal students, and offer employees cultural awareness training to improve the way they engage with Aboriginal Peoples.

Of the CEA companies that identify Aboriginal relations as a relevant issue for their operations, the majority remain committed to Aboriginal engagement at all levels, from

establishing Aboriginal advisory positions and consulting with Aboriginal communities at the earliest stages of project planning to ensuring Aboriginal workers are given equal access to training and employment opportunities (Table 5).

**TABLE 5. Commitment to Aboriginal relations by CEA members**

	2012	2013
Does your company have an Aboriginal relations group or senior Aboriginal advisory positions?	74%	78%
Does your company have procedures requiring early consultation or engagement with Aboriginal communities during project planning and development?	96%	100%
Does your company have business relationships or partnerships with Aboriginal communities?	100%	100%
Does your company have procedures or practices to ensure that training and employment opportunities are provided to Aboriginal employees?	87%	87%

Note: The figures in Table 5 are based on 77 per cent of companies that indicated Aboriginal relations to be a relevant issue for company activities.

<sup>7</sup> CEA uses the term “Aboriginal Peoples” to refer to First Nations, Métis, Inuit and other indigenous groups within Canada.



## SECTOR SUCCESSES

# Collaborative partnerships are achieving results

CEA members are successfully engaging Aboriginal Peoples to build more positive, mutually beneficial relationships with the communities in which they operate.

### INCREASING CULTURAL AWARENESS AT ATCO ELECTRIC

ATCO Electric has a long-standing commitment to consultation and cooperation, working closely with First Nations to understand their culture and communities. A meeting with Bigstone Cree Nation, for example, revealed that ATCO Electric staff would benefit from Aboriginal cultural awareness training. Two camps were held in 2013, with 28 employees working directly with Elders to acquire a deeper understanding of what it means to be an Aboriginal person. Employees participated in a personal healing journey and learned how local vegetation, fish and animals are used for food and medicine.



ATCO Electric employees like Dinesh Sharma were invited to explore many aspects of traditional First Nations culture at the Bigstone Cree Nation cultural camps. *Photo courtesy of ATCO Electric.*

### BC HYDRO EARNS PAR GOLD-LEVEL CERTIFICATION

BC Hydro and Power Authority has earned PAR gold-level certification—the highest level of achievement in the Canadian Council for Aboriginal Business' Progressive Aboriginal Relations Program—in recognition of its commitment to Aboriginal employment, business development, capacity development and community engagement. Last year, BC Hydro made significant investments in Aboriginal training, providing over \$1 million in funding to the Northern Lights College Foundation and \$100,000 to the North East Native Advancing Society. BC Hydro also works with numerous education institutions to award scholarships to Aboriginal students across the province.

### BUILDING POSITIVE RELATIONSHIPS WITH THE KTUNAXA NATION COUNCIL

Throughout 2013, Columbia Power Corporation met with the Ktunaxa Nation Council, one of its key First Nations stakeholders, to discuss next steps after the completion of the Waneta Expansion Project. In the fall, Columbia Power brought together representatives from seven Ktunaxa Nation Council government sectors as well as four Bands. Presentations were made on topics such as environmental stewardship and habitat protection, how Columbia Power engages with communities, and an overview of the company's strategic plan and the potential for future power projects in Ktunaxa Nation territory.

### FORTISBC SUPPORTS THE NATIONAL DAY OF RECONCILIATION

Building and strengthening relationships with Aboriginal Peoples throughout British Columbia is a key pillar of FortisBC Inc.'s community relations. Recognizing that the National Day of Reconciliation is a significant event for the Aboriginal groups it serves, in September 2013 FortisBC presented a \$15,000 donation to Reconciliation Canada's Ambassador Chief Dr. Robert Joseph, a Hereditary Chief of the Gwawaenuk First Nation. These funds will be used to support workshops and outreach activities to transform and renew relationships with Aboriginal Peoples and all Canadians.

### **MANITOBA HYDRO PROVIDES PRE-PLACEMENT TRAINING TO ABORIGINAL CANDIDATES**

Pre-placement training initiatives help Aboriginal Peoples acquire the minimum qualifications needed for entry into Manitoba Hydro's power electrician, operating technician and power line technician training programs. These initiatives help address the gaps related to education by allowing trainees to complete the high school prerequisites for entry into the trades and gain on-the-job work experience in the trades. Since inception, more than 400 trainees have been hired into the programs and in 2013, Manitoba Hydro's first female power line technician completed her apprenticeship program.

### **GIVING FIRST NATIONS THE SKILLS TO CONTRIBUTE TO SASKPOWER PROJECTS**

In 2013, SaskPower and the Black Lake First Nation entered into a formal basic skills training initiative called the Certified Workforce Education Program, which is providing 64 Band members with the skills necessary (e.g., from cooking to heavy

equipment maintenance) to contribute to the development of the Tazi Twé hydroelectric project. Program participants will also receive a certificate from Northlands College, helping them translate their new skills to future job opportunities with SaskPower or other employers in the region.

### **TRANSCANADA DRAWS ON THE ABORIGINAL COMMUNITY TO MEET ITS NEED FOR SKILLED EMPLOYEES**

The Aboriginal and Native American Employee Network is dedicated to the recruitment, retention and advancement of Aboriginal employees within TransCanada. It offers opportunities to share experiences and ideas, creates opportunities for mentorship and sponsorship, and provides links to culturally appropriate community supports in all regions. TransCanada also awards hundreds of thousands of dollars in scholarships, bursaries, university chair and research positions, and in-kind donations to Aboriginal students and educational organizations across the country.



The Waneta Expansion Project Community Day included exciting cultural demonstrations by First Nations participants.  
*Photos courtesy of Columbia Power Corporation.*





Excavation of the Kipling Cofferdam as part of OPG's development partnership with Moose Cree First Nation for the Lower Mattagami River Project which will deliver 438 MW of clean, renewable power when complete in 2015.  
*Photo courtesy of Ontario Power Generation Inc.*





# Economic Performance

ENGAGING TOGETHER FOR GROWTH AND PROSPERITY

The electricity sector's sustainable development strategy ensures communities receive real, tangible value from a reliable and cost-effective supply of electricity delivered by companies that are making significant contributions to the economic growth of their communities.

Throughout 2013, the sector pursued these goals by renewing infrastructure to meet demand, implementing processes to reduce energy consumption, and exploring innovative technologies to answer the country's future electricity needs.

**14.2 billion** 

INVESTED IN INFRASTRUCTURE PROJECTS, UP 17.7% FROM 2012

**5.9 hours** 

SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI), EXCLUDING SIGNIFICANT EVENTS, UP 34.1% FROM 2012

**2.5** 

**interruptions per customer**

SYSTEM AVERAGE INTERRUPTION FREQUENCY INDEX (SAIFI), EXCLUDING SIGNIFICANT EVENTS, NO CHANGE FROM 2012

*Green indicates neutral or improved performance and orange indicates decreased performance.*





# BC Hydro and Power Authority:

## Building Canada's first battery energy storage facility

Located entirely within remote Yoho National Park, the small town of Field, British Columbia, receives its power from a radial distribution line originating in Golden, some 55 kilometres away. Outages are frequent, and because the line runs along rugged mountainous and heavily forested terrain, it can be challenging for crews to access the line to locate faults and restore service, causing significant reliability issues for the town.

### Ensuring a reliable supply of clean electricity

With funding support from Natural Resources Canada's Clean Energy Fund, BC Hydro built a state-of-the-art battery energy storage facility for Field. The first of its kind in Canada,



A view of the exterior of BC Hydro's Field energy storage facility.  
*Photo courtesy of BC Hydro and Power Authority.*

the new facility, which went online in July 2013, stores clean energy produced by renewable energy sources. That energy can then be discharged to help meet Field's electricity needs for up to seven hours in the event of a power outage. During a number of outages, the battery has exceeded seven hours and provided back-up for longer periods.

The energy storage facility is already providing numerous benefits. In the first six months of operation, eight power disruptions occurred, stemming from scheduled work as well as motor vehicle accidents, fallen trees and broken power poles. Each time, the storage facility made sure Field's residents and businesses were not affected, supplying the town with a total of 53.5 hours of back-up battery power.

## FACING FORWARD

One thing the evolution of the electricity system has proven over the course of a century is that scale brings economies of benefit to utilities, users and governments alike.

The industry believes taking a North American approach to electricity generation, transmission and storage could yield further economies and efficiencies, create opportunities for innovative research and development, and allow Canadian providers to export clean electricity to the United States.

Visit [www.Vision2050.ca](http://www.Vision2050.ca).



Trevor Wareham, BC Hydro Electrician Sub-foreman, and Vlad Kositsky, BC Hydro Project Manager, inspect one of four banks of sodium-sulphur battery modules. These four banks of battery modules, linked together, create the one megawatt capacity. *Photo courtesy of BC Hydro and Power Authority.*

## Providing additional economic and environmental benefits

In addition to ensuring continuation of service, the energy storage facility is also reducing the need for more costly and environmentally-unfriendly back-up options such as diesel generation. The facility also allows the battery to discharge at times of high demand to reduce peak load and stress on the system. From an operational perspective, it also provides BC Hydro with additional time for field crews to safely respond to and resolve unplanned outages.

Finally, the project is a critical step toward the larger-scale integration of energy storage into the electricity grid, allowing BC Hydro and other utilities to gain extensive knowledge that can be applied to the future storage of electricity generated from intermittent and renewable sources of energy.

## Improving the system moving forward

While the battery energy storage facility is operational, the project is not yet complete. BC Hydro is now turning its attention to community engagement and education, providing residents with information about energy conservation that will help extend the life of the battery back-up during outages. BC Hydro has also introduced voluntary alerts to notify Field customers when they are on battery power to further promote conservation and prolong back-up capability.

## PRINCIPLE 8: ECONOMIC VALUE



### Provide economic benefits to shareholders, communities and regions in which we operate

Canada's economy depends on a strong, reliable electricity sector and our communities benefit from the revenues it generates. The economic contributions of the sector will only increase further as CEA members continue to renew their infrastructure and respond to the growing electricity needs of customers.

#### Investing in our places and people

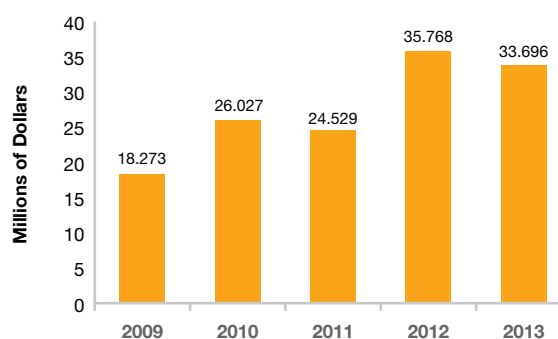
By powering our homes, businesses and institutions, electricity is a major driver of the Canadian economy. CEA members strive to provide this essential service as reliably, cost-effectively and sustainably as possible; creating the appropriate conditions for investments in new infrastructure will be essential in the years ahead to achieving these objectives. In 2013, CEA members spent approximately \$14.2 billion on new and refurbished infrastructure, further securing the reliable supply of electricity Canadians expect from their utilities.

In addition to investing in continued system reliability, CEA members are also adding value to communities in many other ways, including employee compensation, dividends to investors and governments, donations to local charities, sustainable and local sourcing practices, and long-term community investments. For example, CEA members provided \$5.46 billion in payments to various levels of government in 2013; these payments have a significant impact on national and local growth by recycling money back into the economy and enhancing Canadians' quality of life.

#### Acting as good corporate citizens

CEA member companies strive to be good corporate citizens in the communities where they operate, contributing approximately \$33.7 million in charitable donations in 2013 (Figure 12). While this represents a slight decrease of 5.8 per cent compared to the previous year, charitable donations have increased by 84.4 per cent since 2009. These contributions support a wide range of organizations and initiatives, including national charities such as the United Way and Ronald McDonald House, local arts and culture programs, safety and injury prevention campaigns, and hospitals and emergency responders. In addition, many companies go beyond financial contributions by encouraging their employees to engage in volunteer activities that help enrich the quality of life in their communities.

**FIGURE 12. CEA members are giving back to their communities**



## SECTOR SUCCESSES

# Making a difference in our communities

Through targeted donations, investments and partnerships, CEA members are making a positive economic impact in the communities in which they operate.

### ENMAX IMPROVES SERVICE QUALITY AND STRENGTHENS SUPPLY CHAIN SUSTAINABILITY

ENMAX Corporation's customer care centre provides billing and customer service for The City of Calgary's water, sewer, waste and recycling services. When the contract between the two parties expired in 2013, ENMAX worked closely with The City to implement a new 10-year agreement that better aligns governance structure and contract performance, resulting in better service quality and costs for the citizens of Calgary. ENMAX also introduced a new framework for vendor evaluation and is undertaking further changes to its supply chain policy to ensure vendors meet certain expectations related to corporate responsibility.

### HORIZON UTILITIES MAKES A COMMITMENT TO SUSTAINABLE PROCUREMENT

Horizon Utilities Corporation's Sustainable Procurement Policy is encouraging greater sustainability by its vendors and suppliers. Under this policy, Horizon will facilitate partnerships with suppliers who not only provide the best materials at the lowest cost but who also have sustainability mandates and efforts in place. The company has modified its Procurement templates to support the Sustainable Procurement Policy.

### HYDRO OTTAWA IS BUILDING LEADERSHIP SKILLS IN AT-RISK YOUTH

Through its Brighter Tomorrows Investment Fund, Hydro Ottawa partnered with the Christie Lake Kids (CLK) to establish the Sustainable Youth Leadership Centre, which will provide economically-disadvantaged youth participating in CLK's Leaders in Training program with a chance to learn about alternative energy and build their leadership skills. The partnership with CLK



Hydro Ottawa employees work with at-risk youth to build leadership skills.  
*Photo courtesy of Hydro Ottawa.*

also gave Hydro Ottawa employees the opportunity to volunteer during the construction and mentor high-risk inner city kids.

### NEWFOUNDLAND POWER IS LEADING THE FIGHT AGAINST CANCER

Newfoundland Power Inc. strengthens its community connections by participating in several charity and not-for-profit initiatives. Its corporate charity, The Power Of Life Project is particularly dedicated to improving the delivery of cancer care throughout the province. In 2013, more than \$250,000 was donated through the project to the Dr. H Bliss Murphy Cancer Care Foundation, bringing the total amount of donations made to this cause over the years to more than \$2.75 million.





Newfoundland Power employee and a young cancer patient at the Dr. H. Bliss Murphy Cancer Care Foundation clinic.  
*Photo courtesy of Newfoundland Power Inc.*

### **MAKING THE MOST OF COMMUNITY INVESTMENTS AT SASKPOWER**

To ensure its sponsorship practices are aligned with its strategic priorities, in 2013 SaskPower developed a Community Partnerships and Investment Policy that emphasizes educational programming in three core areas: workforce excellence; safety; and energy efficiency. Highlights from last year include donating \$1 million to both the Saskatchewan Institute of Applied Science and Technology and the Saskatchewan Indian Institute of Technologies, as well as a partnership with the Saskatchewan Roughriders to inform customers about energy safety and conservation programs.

### **TORONTO HYDRO EMPLOYEES MAKE 2013 UNITED WAY CAMPAIGN THE MOST SUCCESSFUL YET**

Since 2005, Toronto Hydro Corporation employees and suppliers have donated approximately \$2.4 million to the United Way. The 2013 campaign was the most successful yet, raising more than \$400,000 and surpassing its goal by 21 per cent. In addition, 11 employees contributed to a short promotional video encouraging others to join the campaign, while 160 employees volunteered as campaign ambassadors. Their enthusiasm and dedication was recognized with United Way Toronto's Spirit Award for Best Employee Campaign in the Public Sector.

### **YUKON ENERGY AND NTPC ARE INVESTING IN CANADA'S NORTH**

Both Yukon Energy Corporation and Northwest Territories Power Corporation are deeply committed to investing in the communities in which they operate. In 2013, both utilities gave more than \$85,000 each in corporate donations, sponsorships and in-kind contributions to local food banks, sports organizations, community events, non-profits and workforce development programs—demonstrating their dedication to support the people and places that help make Canada's Northern communities such special places to live and work.

### **MANITOBA HYDRO WORKS WITH FIRST NATION COMMUNITIES TO INSTALL GEOTHERMAL HEAT PUMPS**

Manitoba Hydro worked with Aki Energy, a non-profit social enterprise group, to pilot a project installing geothermal heat pumps on a mass scale throughout First Nation communities by community members. Accordingly, two First Nations communities had 108 geothermal installations completed in the last year, which were enabled by Manitoba Hydro's PAYS (Pay As You Save) financing program. This program allows community members to pay for the geothermal systems with the energy savings realized over time. As a result, in 2014, Manitoba Hydro officially launched its Power Smart Community Geothermal Program, which has three new communities participating in the program, targeting a total of over 250 systems to be installed across five communities within the year.

# PRINCIPLE 9: ENERGY EFFICIENCY



## **Produce, deliver and use electricity in an efficient manner while promoting conservation and demand-side management**

By investing in energy conservation, CEA members are reducing the need for new infrastructure development, helping customers save money on their energy bills, increasing the competitiveness of business and industry by cutting overhead costs, and decreasing GHG emissions related to energy use.

### Creating a culture of conservation

CEA member companies are committed to creating a culture of conservation across Canada through the delivery of customer demand-side management and conservation programs. These are low-cost initiatives that can be adjusted easily depending on a community's short- and long-term energy needs. While some conservation programs are funded by provincial agencies, Canada's electric utilities remain the best source of energy conservation programming for residential, industrial and commercial customers.

Many utilities participate in local community fairs, sporting events, trade shows and other forums to raise awareness of conservation and help customers understand the conservation incentive programs available to them. They also promote their conservation programs through radio, newspaper, magazine, transit and other media campaigns to encourage customers to get more for their energy dollar.

Looking to the future, it will be essential for utilities and stakeholders to work collaboratively to develop innovative new energy conservation programs and enhance Canadians' energy literacy. The implementation of smart meter and grid technologies will further enable the acceleration of new innovative conservation programs.

### Making the electricity sector more efficient

CEA members continue to make progress on improving the energy efficiency of their own operations through investments in their facilities and buildings. Although tracking quantitative energy savings has proven challenging, CEA members are investing in internal energy efficiency measures such as state-of-the-art lighting and other systems in their office buildings; energy efficient computers and equipment; and high-efficiency turbine runners, transformers and other facilities.

2014 marks the 25<sup>th</sup> anniversary of BC Hydro's successful Power Smart program for energy conservation.  
*Photo courtesy of BC Hydro and Power Authority.*



## SECTOR SUCCESSES

# Working toward a more energy-efficient Canada

Across the country, CEA members are helping create a culture of energy conservation.

### NEW ONLINE TOOL HELPS BC HYDRO CUSTOMERS TRACK ENERGY CONSUMPTION

By the end of 2013, 97 per cent of BC Hydro and Power Authority's customers were using smart meters. These smart meters were key to allowing BC Hydro develop and roll out MyHydro last year, a new online portal that lets customers track their electricity consumption on an hour-by-hour basis and compare their power use to similar homes nearby, giving them one-stop access to even more tools and tips for conserving energy.



FortisBC employee talks to residents about the benefits of energy efficiency.  
*Photo courtesy of FortisBC Inc.*

### FORTISBC PUTS HOMEOWNERS ON 'ENERGY DIETS'

To help people overcome the barriers to making energy efficiency improvements in their homes, FortisBC Inc. rolled out 'energy diet' programs in its Okanagan and Kootenay service area. In addition to an education and marketing campaign to help homeowners understand the benefits of energy efficiency, FortisBC reduced the cost of its home energy assessments and provided access to a local energy coach. In total, 1,740 customers signed up for assessments, helping them reduce energy costs and increase home comfort.

### HORIZON UTILITIES ENCOURAGES SMARTER GROWTH IN THE COMMERCIAL SECTOR

Horizon Utilities Corporation's new smart growth-inspired connection program has the potential to provide lower electricity connection costs to commercial customers who move to infill sites. A database of vacant commercial and industrial locations was also developed as part of this program to help businesses find properties with electricity infrastructure already in place. The program leverages existing infrastructure and resources to make the startup costs for infill development more attractive and affordable when compared to greenfield development.

### MANITOBA HYDRO HELPS BUSINESSES OVERCOME FINANCIAL BARRIERS TO ENERGY EFFICIENCY

Launched in September 2013, the Power Smart for Business PAYS (Pay As You Save) financing program is helping Manitoba Hydro's commercial customers mitigate the capital cost barrier often associated with upgrading to energy efficient technology. The program offers extended financing terms for several different types of upgrades such as LED lighting; high-efficiency furnaces, boilers and geothermal heat pumps; CO<sub>2</sub> sensors; and low-flow toilets and urinals. Within the first six months of the program, seventeen applications were received from customers ranging from manufacturing plants to convenience stores.

### MAKING GREENER CHOICES WITH HYDRO ONE

Last year, Hydro One Inc. created the Greener Choices Program to help promote energy efficiency, greenhouse gas reduction and environmental awareness among its employees, with one of the key program elements being to identify retrofit opportunities at its own transmission stations and operations. Several external-facing conservation programs were also deployed throughout the Hydro One service area, providing homeowners and business with numerous incentives and rebates to complete energy efficiency retrofits, including a program offering free lighting upgrades for small businesses.





Horizon Utilities employees promoting energy conservation on World Environment Day at Gore Park in Hamilton, Ontario.  
*Photo courtesy of Horizon Utilities Corporation.*

### **REDUCING THE ENERGY REQUIRED AT NALCOR'S THERMAL GENERATING STATIONS**

Nalcor Energy's Holyrood Thermal Generation Station uses an electric heat trace system (EHTS) to ensure a consistent, year-round temperature of the pipeline that transfers fuel shipments to onsite storage tanks. Given that fuel shipments only happen during part of the year, Nalcor saw an opportunity to significantly reduce energy consumption by lowering the EHTS' temperature set points outside the delivery season, a new control procedure that will help save 344,000 kWh of electricity each year.

### **NOVA SCOTIA POWER IS PLUGGING THE LEAKS IN ITS OWN EQUIPMENT**

High-turbine exhaust pressure is the leading contributor to fuel loss in Nova Scotia Power Inc.'s fleet of thermal units, a problem further compounded by condenser air-in leakage (AIL).

To mitigate this problem, Nova Scotia Power implemented an AIL monitoring and control program in 2013. After using multi-sensor test probes and portable helium tracer gas equipment to detect leaks, maintenance work was done on seven thermal units with the fuel savings resulting from this work expected to reach \$1 million per year.

### **YUKON ENERGY INVESTS IN INTERNAL ENERGY EFFICIENCY**

In 2013, Yukon Energy Corporation completed a number of energy efficiency retrofits at its own generating facilities and administrative buildings in Whitehorse and Dawson City, including the replacement of outdated lighting systems. A building energy tracking system was also established to better gather and analyze Yukon Energy's building-related energy use.



# PRINCIPLE 10: SECURITY OF SUPPLY



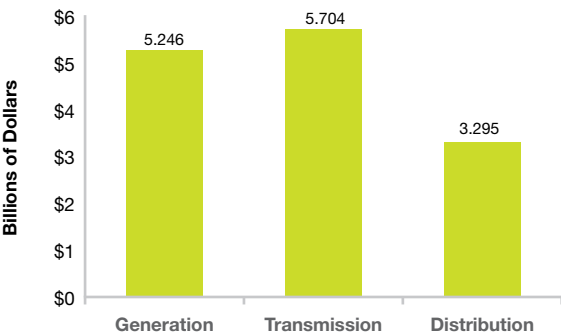
## Provide electricity to customers in a safe, reliable and cost-effective manner to meet current and future needs

To meet Canada's current and future electricity needs, CEA members are investing in a broad range of infrastructure and technologies, and are making plans to ensure the safety and reliability of the system in the face of severe weather and natural disasters.

### Investing in infrastructure

With much of Canada's electricity infrastructure built 35 to 50 years ago, meeting the current and future electricity demands of Canadians will require utilities to maintain and refurbish their existing assets while also developing new infrastructure. In 2013, CEA members invested a total of \$14.2 billion (Figure 13) in new projects and the refurbishment of existing equipment (i.e., renovating, updating, retrofitting or replacing old equipment, wires or systems with new, higher efficiency technology). Much of this investment was in generation and transmission facilities, with more than \$5 billion being spent in each category last year; distribution-related investments were just over \$3 billion in 2013.

**FIGURE 13. CEA members are investing in new and refurbished infrastructure**



CEA member companies are also making investments in a wide range of fuels and technologies, including nuclear, hydro, gas turbines, coal (with carbon capture and storage systems) and renewable technologies such as wind, solar, tidal and biomass. While all of these technologies are needed to maintain fuel diversity, it must be noted that 2013 was a record year for wind energy development in Canada, with new installed capacity from 23 wind energy projects totalling nearly 1,600 MW. At the end of 2013, Canada had 7,802 MW of total installed capacity, with Ontario and Quebec leading the country with close to 2,500 MW each.<sup>8</sup>

### Ensuring service continuity

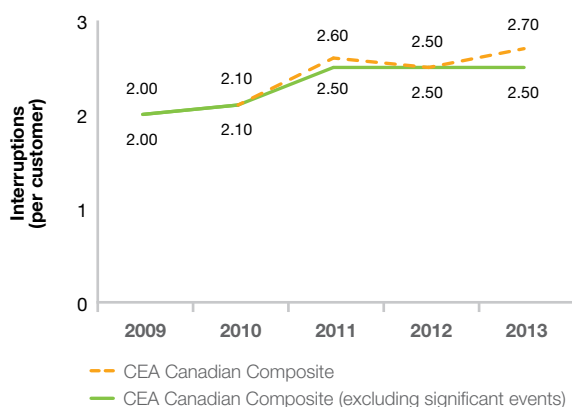
2013 was a challenging year for the electricity sector with regard to service interruptions, as a number of severe weather events caused longer-than-usual power outages such as the summer floods in Calgary and Toronto and the massive snow and ice storms in Ontario and the Maritimes in April and December. Even without these significant weather events (which are completely outside the control of the utility), equipment failure and power line contact with vegetation remain the main causes of these outages so members are working diligently to renew aging infrastructure and improve upon their existing vegetation management practices.

The frequency of interruptions, excluding the significant events, stayed consistent from 2012 to 2013 at 2.5 interruptions per customer (Figure 14). At the same time, the duration of these outages (again, excluding significant events) increased by 34.1 per cent, up to 5.9 hours in 2013 compared to 4.4 hours in 2012 (Figure 15).

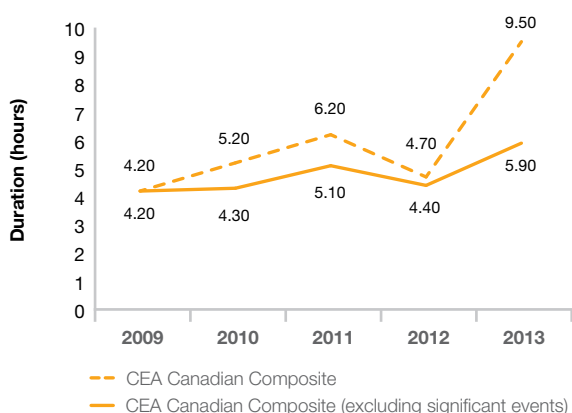
8 Canadian Wind Energy Association. Installed wind capacity in 2013. Retrieved from [www.canwea.ca/wind-energy/installed-capacity](http://www.canwea.ca/wind-energy/installed-capacity).

Ensuring service continuity and reliability also means being prepared for emergencies. More and more CEA members are undertaking emergency planning: 97 per cent have pandemic plans; 93 per cent have plans to deal with natural disasters; and 93 per cent have business continuity plans in place.

**FIGURE 14. The System Average Interruption Frequency Index (SAIFI) remains relatively consistent with recent years**



**FIGURE 15. Severe weather caused an increase in the System Average Interruption Duration Index (SAIDI)**



## Making the electric grid smarter

Investments in smart grid and smart meter technologies are essential to modernizing Canada's electricity system and keeping electricity rates low. CEA members continue to roll out smart meters across Canada, installing an additional 204,000 in 2013. By providing new tools to customers that enable time-of-use pricing, hour-by-hour consumption monitoring and more accurate readings, smart meters are not only saving Canadians money on their electricity bills, they're also increasing the reliability and efficiency of the system.

The evolving smart grid also automates many elements of the distribution system, helping to improve system operation, accelerate restoration following outages, accept intermittent power supplies from renewable sources, and adopt new technologies such as electric vehicle charging stations.



When the snow starts to fly and the temperature plunges, most people head indoors while EPCOR utility workers like Meghan are heading out the door to get the power back on. *Photo courtesy of EPCOR Utilities Inc.*

## SECTOR SUCCESSES

# Investing in system reliability and emergency response

CEA members are committed to providing a secure and reliable supply of electricity for all Canadians.

### **CITY OF MEDICINE HAT IS IMPLEMENTING INTEGRATED SMART METERS**

The City of Medicine Hat became the first municipality in Canada to combine the meters of all three utilities (electric, water and gas) in a unified automated metering infrastructure (AMI) project. In addition to making it easier for customers to monitor and reduce their consumption patterns, the AMI project also enhances the City's security of supply through the system's ability to quickly identify any problem or need for action and relay that information to the appropriate utility.

### **MASSIVE GRID SECURITY EXERCISE HELPS HYDRO OTTAWA IMPROVE BUSINESS CONTINUITY PLANS**

Hydro Ottawa's Business Continuity Management Program (BCMP) ensures the organization is capable of restoring service in the event of an emergency. In 2013, Hydro Ottawa participated in the Grid Ex II grid security exercise, an event involving more than 230 utilities and government agencies across North America, to assess its capability to respond to both physical and cyber security incidents. The results of this exercise helped Hydro Ottawa revise its response policies and structures, further strengthening the BCMP.

### **NOVA SCOTIA POWER INVESTS IN MARITIME LINK**

The Maritime Link is a proposed undersea cable that will connect the electrical grids of Nova Scotia and Newfoundland and Labrador. This project makes up a large component of Nova Scotia Power Inc.'s strategy to reach 40 per cent renewable generation by 2020 and to provide firm generation to back up intermittent wind power. The Maritime Link is being supported through a federal government loan guarantee, which saves more than \$100 million dollars in financing costs over the 35-year period, all of which will be passed directly to customers.



OPG celebrates that its new Niagara Tunnel is now providing more clean, renewable power for Ontario. *Photo courtesy of Ontario Power Generation Inc.*

### **ONTARIO POWER GENERATION COMPLETES NIAGARA TUNNEL**

Ontario Power Generation Inc. finished construction on the Niagara Tunnel in 2013. A source of pride not only as a feat of engineering, it is also a practical solution for meeting Ontario's need for clean, renewable electricity. By adding 500 cubic meters of water per second to the Sir Adam Beck Generating Complex, the tunnel can produce more power than the City of Niagara Falls uses each year and will be able to do so for 100 years or more with minimal maintenance costs.

### **SAINT JOHN ENERGY RESPONDS QUICKLY TO MASSIVE ICE STORM**

At Christmas 2013, a large and dangerous ice storm struck New Brunswick, involving days of freezing rain, ice, ice pellets, snow and high winds. Through a strong utility response and excellent tree trimming, Saint John Energy had all of its customers returned to service within 36 hours, freeing up its operational crews to assist a neighbouring utility.





Pipe pull-down for Vancouver City Central Transmission Project. Photo courtesy of BC Hydro and Power Authority.

### BC HYDRO ENSURES THE ELECTRICITY SYSTEM KEEPS PACE WITH VANCOUVER'S GROWTH

In response to extensive residential and commercial growth, BC Hydro and Power Authority completed the \$201-million Vancouver City Central Transmission (VCCT) Project to increase the reliability of supply throughout the city. The VCCT Project had three main components: BC Hydro's first LEED-qualified substation, which features energy efficient roof material and lighting; a new eight-kilometre transmission line under the city's streets to connect two existing substations with the new substation; and a crossing under the bed of False Creek, connecting the north and south ends of the transmission line.

### NEWFOUNDLAND POWER ACHIEVES RECORD RESPONSE TIME TO SYSTEM OUTAGES

Newfoundland Power Inc. conducted several emergency preparedness exercises in 2013 to minimize the impact on supply in the event of disaster. In addition, approximately half of the company's capital investments are devoted to strengthening the electricity system, which last year included the rebuilding and upgrading of some 100 kilometers of transmission line on Bonavista Peninsula. As a result, the company delivered electricity to its customers 99.97 per cent of the time in 2013, making it Newfoundland Power's best year on record.



To ensure service interruptions are kept to a minimum, regular maintenance of the electrical system is important. Photo courtesy of Newfoundland Power Inc.



A snapshot of an Emergency Management exercise being held at Newfoundland Power's System Control Center. Photo courtesy of Newfoundland Power Inc.



## CEA members respond to the Alberta floods

In June 2013, catastrophic floods swept through southern Alberta. CEA members were on the front lines, working hard to restore service and supply aid to their communities.

As rising waters flooded several of its facilities, ENMAX Corporation was quick to reconfigure its distribution system so affected neighbourhoods could receive power from alternate substations facilities. When downtown Calgary went dark, crews from EPCOR Utilities Inc. and ENMAX worked together, drawing on the experience of their joint energy response exercises to ensure the right people and equipment were on hand to get the lights back on.

AltaLink also joined the effort, activating its Emergency Response Plan to ensure its transmission system continued to deliver a reliable supply of power. Employees volunteered their time to help clean up the affected communities, and donated nearly \$160,000 to organizations such as the Red Cross, the Calgary Food Bank and the Calgary Foundation's Flood Rebuilding Fund.

In High River, more than 200 power line technicians from across FortisAlberta Inc.'s service area disconnected and secured nearly 6,700 residential meters to ensure electrical equipment was safely isolated until residents could return to their homes. In addition, more than 100 employees volunteered their time and energy to assist co-workers and customers affected by the floods.

A crew of ATCO Electric volunteer fire fighters travelled to High River to support the community's fire department. For more than a week, the ATCO Electric volunteer fire fighters responded to emergency calls and assisted with community clean-up efforts. Employees also donated money and goods to support flood victims.



ENMAX employees volunteering in High River, Alberta to assist with flood relief. Photo courtesy of ENMAX Corporation.



An AltaLink transmission line in Canmore, Alberta during the 2013 flood. Photo courtesy of AltaLink.



The ENMAX and EPCOR Alberta Flood Relief Team. Photo courtesy of ENMAX Corporation.

# CEA Sustainable Electricity Award Recipients

Through annual sustainability awards, CEA recognizes companies that are innovative in their approach to the environmental, social and economic aspects of their operations. Nominations are evaluated by the program's independent Public Advisory Panel.



**Left to right:** Bryce Conrad, President and CEO at Hydro Ottawa; and Jim R. Burpee, CEA's President and CEO.

## Environmental Commitment Award: Hydro Ottawa

### IN RECOGNITION OF HYDRO OTTAWA'S ENVIRONMENTAL SUSTAINABILITY STRATEGY AND RESULTS ACHIEVED

By the end of 2013, Hydro Ottawa's Environmental Sustainability Strategy had achieved notable results in three key areas: overall carbon footprint reduction (through improvement in fleet, facilities, technology infrastructure, and non-hazardous waste management and recycling); supply chain sustainability and green procurement; and building a culture of sustainability in the company's business practices and throughout its workforce.

For example, Hydro Ottawa replaced many of its vehicles with hybrid or more energy-efficient vehicles, introduced environmental considerations into their procurement processes, and worked to source goods and services from local firms as part of its efforts to reduce its carbon footprint. The organization has also enacted extensive conservation efforts in the community and among its own employees. As a result, Hydro Ottawa was selected as one of Canada's 50 Greenest Employers for the fourth year in a row, a title that recognizes organizations that lead the country in incorporating environmental values into their corporate culture.

## Social Responsibility Award: Ontario Power Generation Inc. (OPG)

### IN RECOGNITION OF OPG'S SUCCESSFUL PARTNERSHIPS WITH FIRST NATIONS AND MÉTIS COMMUNITIES

Ontario Power Generation was recognized for its strong commitment to building and growing mutually beneficial working relationships with First Nations and Métis communities. The company currently works with more than 50 Aboriginal communities across Ontario on several electricity projects.

In 2006, OPG and Lac Seul First Nation partnered on the Lac Seul Generating Station. This partnership, still in effect, has benefited the community through economic opportunities, joint ventures, training programs and more. More recently, OPG established a development partnership with Moose Cree First Nation for the Lower Mattagami River Hydroelectric Project. Moose Cree First Nation has up to a 25 per cent equity share in the project, which will deliver 438 MW of clean, renewable power when completed in 2015. Based on the success of these partnerships, OPG continues to pursue similar long-term commercial arrangements with First Nations and Métis communities, with a third partnership project currently in development with the Taykwa Tagamou Nation.



**Left to right:** Jim R. Burpee, CEA's President and CEO; Jacquie Hoornweg, Vice President, Corporate Relations and Communications for Ontario Power Generation; and Anthony Haines, President and CEO at Toronto Hydro Corporation and Chair of CEA's Board of Directors.

## Economic Excellence Award: BC Hydro and Power Authority

### IN RECOGNITION OF THE DEVELOPMENT AND IMPLEMENTATION OF MODULAR DIESEL GENERATING STATIONS IN REMOTE COMMUNITIES

BC Hydro's Remote Community Electricity Program provides electricity to eligible communities in British Columbia that are not currently served by BC Hydro or any other public utility. These communities are much smaller and more remote than other off-grid communities already served by BC Hydro, which presents a number of challenges: large swings in seasonal and daily loads; instantaneous fluctuations; and disproportionate effects caused by what would be small changes in other markets (e.g., the addition of a single new commercial building could potentially double a community's load requirements).

To address these challenges, BC Hydro worked with Finning Power Systems to design and develop sub 1 MW modular diesel generating stations. Two stations were successfully implemented in two communities in 2013, already improving the reliability of the electricity supply while reducing greenhouse gases and noise emissions. The stations have also provided a cost-effective and environmentally-friendly way to integrate adaptable renewable energy into the system for remote communities.



**Left to right:** Jim R. Burpee, CEA's President and CEO; Greg Reimer, Executive Vice President, Transmission and Distribution for BC Hydro; and Anthony Haines, President and CEO at Toronto Hydro Corporation and Chair of CEA's Board of Directors.

# Verification Statement



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June 6, 2014

## ***Re: Sustainable Electricity Independent Verification Assurance Statement***

Sustainable Electricity is a mandatory sector-wide sustainable development program developed and implemented by the corporate utility members of the Canadian Electricity Association. The independent verification process is a core element of the Sustainable Electricity program and is conducted by an independent, qualified assessor, in accordance with CEA independent verification protocols. This is to attest that Duerden & Keane Environmental Inc. (D&K) successfully completed on-site independent verification of the following companies in 2013:

### **Manitoba Hydro, Toronto Hydro Corporation, Hydro One Inc. and Horizon Utilities Corporation**

In accordance with the verification protocols, D&K Environmental Inc. utilized the following framework to ensure data integrity and conformance with the program requirements.

### **SCOPE OF THE VERIFICATION:**

- The degree of adherence to the CEA Policy on Sustainable Development – Corporate Responsibility
- Consistency and accuracy of information provided to CEA on key performance indicators
- Conformance with CEA's requirement for an ISO 14001 consistent environmental management system (EMS)

### **VERIFICATION PROCEDURE:**

- Interviews with senior company executives on the strategic direction/issues related to sustainable development, as well as their commitment to the principles of the Sustainable Electricity program
- Interviews with other appropriate company representatives to verify information provided to CEA
- Document reviews and cross referencing of information for consistency and accuracy (e.g., annual reports, websites, information reported to government agencies)
- Review of data-collection procedures
- Testing of calculations performed for specific key performance metrics
- Review of environmental management system elements and procedures, including internal/external audits and minutes from management reviews



## VERIFIER CONCLUSIONS:

- A very good understanding and commitment to the principles of the Sustainable Electricity program by senior company executives and staff
- High level of consistency between information provided to CEA and information published in other reports
- Some minor deficiencies in reporting
- Significant conformity with CEA's EMS requirement

To ensure all companies conform to the requirements of the Sustainable Electricity program, the same verification approach will be utilized at the following yet-to-be-verified CEA member companies (in the order of scheduled external verifications):

- Oakville Hydro Corporation
- Ontario Power Generation Inc.
- Brookfield Renewable Energy Group
- Hydro Ottawa
- Maritime Electric Company, Limited
- New Brunswick Power Corporation
- Newfoundland Power Inc.
- Nalcor Energy
- Saint John Energy
- Nova Scotia Power Inc.

AltaLink, ATCO Electric, ATCO Power, BC Hydro and Power Authority, Capital Power Corporation, Columbia Power Corporation, ENMAX Corporation, EPCOR Utilities Inc., FortisAlberta Inc., FortisBC Inc., Northwest Territories Power Corporation, Saskatoon Light & Power, SaskPower, TransCanada and Yukon Energy Corporation were all verified in previous years. City of Medicine Hat, Electric Utility will be verified in a future year.

We would like to thank CEA for the opportunity to perform the verifications in 2013, and we look forward to the next round of verifications in October 2014.

### For Duerden & Keane Environmental Inc.,



Colin Duerden  
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## ABOUT THE CANADIAN ELECTRICITY ASSOCIATION

Canadian Electricity Association members generate, transmit and distribute electrical energy to industrial, commercial, residential and institutional customers across Canada every day. From vertically integrated electric utilities, independent power producers, transmission and distribution companies, to power marketers, to the manufacturers and suppliers of materials, technology and services that keep the industry running smoothly—all are represented by this national industry association.

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