
Driving Clean Growth

Powered by Canadian Electricity

Ottawa, Canada - June 1, 2016



The Canadian Electricity Association (CEA) is the authoritative voice of electricity in Canada, promoting it as a key social, economic and environmental enabler that is essential to Canada's prosperity. CEA members generate, transmit and distribute electrical energy to industrial, commercial, residential and institutional customers across Canada.



Canadian
Electricity
Association

Association
canadienne
de l'électricité

Enabling Clean Growth

Tomorrow's economy will be built on a solid foundation of clean, sustainable growth. Growth that will drive new technologies, increase productivity, and create good jobs for Canadians. As we work to operationalize the Paris Agreement, and move from aspiration to action, Canada has a significant advantage in one crucial area: access to abundant sustainable and reliable power.

Meeting our ambitious climate change targets is as much an economic and financial challenge as it is an environmental one, particularly for resource-based economies such as ours. Canada's electricity sector operates at the nexus of economic growth and environmental protection, and is uniquely positioned to power our future low-carbon economy.

With a generation mix that is already over 80% Greenhouse Gas (GHG)-free, Canadian electricity is among the cleanest in the world. It is a key driver of economic growth that has reduced emissions by nearly 30% since 2005, more than any other industrial sector. Canada's electricity sector is an economic and environmental success story that can be exported to other, higher-emitting, sectors of the North American economy.

By investing in electricity infrastructure we can continue to be among the world's leaders in the production of the clean, reliable and sustainable electricity that Canadians rely on every day. By electrifying transportation, buildings and industrial processes we can significantly reduce our emissions, drive energy efficiency and create good, green jobs right across the country.

By facilitating the increased exportation of clean, affordable and reliable electricity to the United States, Canada can contribute to our own economic prosperity while helping our neighbours meet their emission reduction goals. By addressing existing regulatory and policy gaps, we can incentivize Canadian utilities to launch pilot projects and conduct technology trials that will help reduce emissions, increase efficiency and make Canada a leader in the high-margin knowledge-economy.

By investing in energy efficiency and conservation programs Canada can increase productivity, decrease energy consumption and help Canadians meet their commitment to the environment. By electrifying the North, we can level the playing field and make sure that no Canadian is left behind in the transition to a cleaner, more prosperous future.

“We view climate change not just as a challenge but as an historic opportunity. An opportunity to build a sustainable economy, based on clean technology, on green infrastructure, and on green jobs. We will not sacrifice growth; we will create growth.”

THE RIGHT HONOURABLE JUSTIN TRUDEAU,
PRIME MINISTER OF CANADA

By actively engaging the provinces, Canada can ensure that nation-building projects get off the ground and that all Canadians share in their economic, social and environmental benefits. By building a predictable and credible environmental assessment process, Canada can find the balance between environmental protection and economic necessity in order to deliver the greatest return for Canadians.

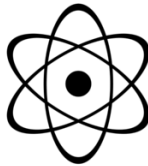
By establishing an economy- and continent-wide carbon price we can maximize emissions reductions at the lowest cost, while protecting the competitive position of our companies. By preparing for climate change via adaptive measures, Canada can help mitigate its social and economic impacts. And, by adopting a balanced, pragmatic and consultative approach between governments and industry, Canada can empower real change here and around the world.

In short, the Canadian electricity sector is Canada's clean energy solution. We are new technology; we are sustainable infrastructure; and we are green jobs. Clean growth is a huge global challenge but, by harnessing the power of clean, safe and reliable electricity, Canada is well positioned to lead.



Hydro power is a clean, renewable energy source from which Canada already draws a significant amount of its electricity.

Although the development potential in Canada is difficult to estimate - as some technically viable sites may not be economically suitable - the opportunities are significant. Additional generating capacity safely in the tens of thousands of megawatts.

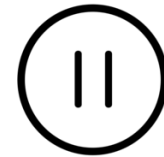


Nuclear power is a low-emitting base-load power. It has an unblemished safety record in Canada and contributes significantly to its power generation.

Regulatory certainty is required to stimulate investment in both multi-billion dollar projects and small modular reactors, depending on the jurisdiction.



Natural gas enables environmental and system performance. It emits about half the CO₂ per kw/hr as coal, pairs very well with intermittent sources, and is the lowest cost option in many provinces. Economic growth requires choice. Regulations that would prohibit new investment or require expensive retrofits would negatively impact growth while providing little environmental gain.



The proportion of clean, renewable sources, such as wind, solar, in-stream hydro, and tidal energy will continue to grow in the years ahead.

R&D funding will be essential to ensuring that emerging power sources are integrated into the existing electricity system as quickly and economically efficiently as possible.

Clean Growth Opportunities in the Electricity Sector

Sustainable Growth Through Infrastructure Investment

Investment in Canada's electricity system grows the economy. It creates good jobs, promotes clean economic growth and ensures businesses and households continue to benefit from access to safe and reliable energy.

A 2012 Conference Board of Canada (CBOC) report estimated that between now and 2030, we will need to invest \$350B in electricity infrastructure in order to meet Canada's electricity requirements. That's an average of \$13 billion a year. According to the CBOC, these investments will boost the real GDP by approximately \$21.3 billion, create approximately 156,000 jobs per year, and result in direct, indirect and induced annual impacts to Canada's economy of approximately \$10.9 billion.

For every \$100 million (inflation adjusted) invested in electricity infrastructure, real GDP will be boosted by \$85.6 million and 1,200 jobs will be created.

CONFERENCE BOARD OF CANADA

The Canadian Chamber of Commerce referred to both "brain" investments and "brawn" investments in their 2013 report on electricity in Canada. Specifically, the Chamber noted that "to sustain the transition over time, investments in both "brawn" (new capacity and infrastructure) and "brains" (technological upgrades to existing infrastructure) will be required."

Traditional infrastructure must be renewed, replaced and expanded, but we must also invest in a smarter, more responsive electricity system, capable of integrating new technologies and addressing external challenges. Yet,

CEA members face several regulatory and policy challenges in modernizing their respective systems, not the least of which is securing funding or regulatory, political and public approval for major infrastructure projects.

Electricity is indispensable to our quality of life and the competitiveness of our economy. It is a national asset that needs to be continually nurtured. Smart planning and targeted infrastructure investments will allow Canada to replace, renew or reimagine its electricity infrastructure to meet the evolving needs of Canadians and enable low-carbon growth.

An investment in electricity infrastructure is an investment in Canada's future. ***By investing in electricity infrastructure we can continue to be among the world's leaders in the production of the clean, reliable and sustainable electricity that Canadians rely on every day.*** And ensure the system we leave to our children is as strong as the one we inherited.

Emissions Reductions Through Electrification

Safe, reliable and inexpensive energy is a fundamental building block of any successful economy. Canada's access to an abundance of sustainable electricity is a strategic advantage for our companies and our citizens.

Canada's electricity sector has reduced its emissions by nearly 30% since 2005, more than any other industrial sector, and will likely do the same again by 2030. This success can be exported and multiplied through the electrification of other sectors.

The most logical candidate is transportation, which on its own accounts for nearly 25% of Canada's carbon footprint. Electricity is the cheapest energy source for mobility. Driving 100 kms in Canada on an internal combustion engine can be up to eight times more expensive than driving the same distance in an EV. Simply put, electricity is the cheaper, greener and more sustainable way to move people and goods. The electrification of transportation will reduce emissions, reduce costs and increase Canada's competitive position, all while creating green jobs.

“Fuel switching to decarbonized electricity is the single most significant pathway toward achieving deep emissions reduction globally.”

CMC RESEARCH INSTITUTE

The electricity sector is ready to help power Canada's shift to a greener future. There is spare generating capacity in the existing fleet and sufficient transmission and distribution capacity to deliver even more power, especially overnight. The marginal costs to “right-size” equipment to service a growing load can be managed by distribution companies.

Should additional generating capacity be required, as per the previous section, there is still considerable development potential for traditional and in-stream hydro, tidal, wind, solar, natural gas, and nuclear power. Developing these natural assets will drive economic growth and further reduce emissions.

Canada needs to invest in tomorrow's energy system today. ***By electrifying transportation, buildings and industrial processes we can significantly reduce our emissions, increase our competitive advantage and create good, green jobs right across the country.***

Job Creation Through our Electricity Trade Surplus

Canada is a trading nation, and our economic competitiveness is inextricably linked to our two North American trading partners, the United States and Mexico. For over 20 years, the deep economic integration facilitated by the North American Free Trade Agreement has propelled us to new heights of prosperity. Nowhere is the depth and importance of these ties better reflected than in our integrated electric power system.

Canada and the U.S. alone are joined by more than 35 electric transmission interconnections, through which the two countries' have cultivated a robust electricity trading relationship. And that relationship will continue to grow.

The North American Electric Reliability Corporation projects Canadian exports to the U.S. will triple as a result of the implementation of the Clean Power Plan. Particularly as the U.S. has identified imported Canadian electricity as a viable way for States to meet the aggressive emission reduction targets.

Americans are keen to import clean Canadian electricity resources and are looking for ways to open more doors for Canadian electricity to be added to their supply mix. To do so, barriers to trade must be addressed, permitting processes must be streamlined and sound, evidence-based clean energy decisions and policies should be facilitated by sharing energy information.

Canada's low GHG-emitting electricity sector is ideally suited to power the next chapter of North American prosperity, particularly as leaders look to a potential North American Agreement on Energy and the Environment. ***By facilitating the increased exportation of clean, affordable and reliable electricity to the United States, Canada can contribute to our own economic prosperity while helping our neighbours meet their emission reductions goals.***

In 2015, Canada's share of the total value of bilateral trade revenue was a surplus exceeding C\$3.1 billion.

NATIONAL ENERGY BOARD

Building a Knowledge Economy Through R&D Investments

Canadian companies are some of the most innovative and resourceful in the world. Canadian contributions, from art to science, have made impacts around the globe - and benefited our economy in the process. But each and every success starts as an untested idea. It requires risk taking. If we are to find the next game-changing technology, Canadian electricity companies need a real-world 'sand box' in which technologies and innovations can be tested and refined.

The current policy and regulatory environment in which Canadian utilities operate does not stimulate innovation or encourage risk related R&D investments. Provincial regulators are, necessarily, focused on maintaining low electricity rates or compelled to find cost savings through incentive based regulatory rate-making regimes.

Decoupling rates from actual operating costs forces utilities to make up the difference through stringent savings, which reduces or eliminates opportunities to invest in R&D. It also creates a sizeable gap between what regulators permit utilities to do and the governments' strategic aspirations. An inefficient and/or uncoordinated regulatory regime could inadvertently act as a barrier to innovation and growth, which is why it is imperative that governments urgently bridge this gap.

Research and development (R&D) is recognized as an important contributor to both business innovation and labour productivity growth.

STATISTICS CANADA

Canada's electricity system is at a critical juncture, operating in a climate of reduced economic growth, unprecedented technological change and increasing customer expectations. In order to thrive in this new reality, adjusted regulations, policies and funding options will be required. This includes direct funding but also increased opportunities for partnerships and collaboration, as well as providing regulatory flexibility to encourage a culture of innovation and experimentation.

New processes and technologies will be increasingly important in lowering emissions, promoting economic growth and propelling Canada to the forefront of a green, knowledge-based economy. They will also help Canada's electricity system expand to accommodate new electricity uses; increase responsiveness and storage capabilities; build a two-way grid that Canadians can contribute to; and enable new forms of energy generation, such as wind, solar and tidal.

By addressing existing regulatory and policy gaps, we can incentivize Canadian utilities to launch pilot projects and conduct technology trials that will help reduce emissions, increase efficiency and make Canada a leader in the high-margin knowledge-economy.

Increased Productivity Through Energy Efficiency and Conservation

Canadians are committed to protecting our environment and reducing emissions. Energy efficiency can be a cost effective and sustainable enabler of clean growth, reduced energy consumption and environmental stewardship. When Canada's economy becomes more energy efficient, business overhead decreases and household budgets increase. Ultimately, a more efficient economy is a more productive one.

Increased energy efficiency also has a number of knock-on benefits in addition to increasing economic competitiveness and reducing energy expenditures such as improving energy security, increasing health benefits and improving indoor comfort.

In International Energy Agency member countries energy use avoided in 2010 was actually larger than the demand met by any single supply-side resource, including oil, gas, coal and electricity

THE ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD) / INTERNATIONAL ENERGY AGENCY (IEA)

Investments in energy efficiency yield cumulative and lasting energy and cost savings. Long-term and sustained funding creates certainty for program delivery and sends the kind of clear signal required to affect behaviour change and market transformation.

Canada's utilities are leading the charge. They have been providing energy efficiency programs and information to Canadians for decades. Electricity companies continue to leverage their understanding of socio-economic diversity, regional lifestyles and local energy demand to promote increased efficiency and smart consumption.

By investing in energy efficiency and conservation programs, Canada can increase productivity, decrease energy consumption and help Canadians meet their commitment to the environment.

Equal Opportunity through the Electrification of the North

Canada was built on the principles of equality and opportunity. Yet remote and northern communities still lack access to safe and reliable power. Despite the enormous potential for clean energy, the vast majority rely on expensive, imported diesel-fuel for meeting their basic energy needs. Canadians in these communities are as deserving of affordable and reliable power as the rest of us.

Canada suffers from significant “energy inequality” when it comes to our remote and northern communities, where the cost of electricity in many regions is estimated to be over 10 times higher per kilowatt-hour than the Canadian average. This is as much an economic as a social issue. The lack of access to affordable power limits economic opportunities and stifles growth and prosperity.

A prime example is the “Ring of Fire” mineral belt in northern Ontario. The absence of electricity infrastructure in the region has hindered the economic case for mineral resource development in the region. Development that is welcomed by indigenous and northern communities and would create sustainable jobs, drive economic growth and reduce emissions by bringing clean energy solutions online. Our northern communities are also ideal candidates for the deployment of hydro, wind, solar, biomass, energy storage, and distributed generation options.

Despite the efforts of individual utilities, there is still much work to be done to achieve widespread clean growth in the North. Often regulators, necessarily focused on costs and rates, do not allow utilities to extend services to northern communities due to a lack of critical mass.

The Canadian electricity sector is ready to support a northern clean energy transition. We are ready to engage stakeholders, particularly governments and regulators, and find ways of funding affordable energy solutions. Sustained support from governments is critical to making such transformational investments possible.

Access to clean, safe and reliable electricity is a precursor for clean water, better education, improved health care, increased economic development, better employment and, ultimately, a better quality of life.

We must come together as Canadians and make this a national priority. We electrified our cities, then our rural communities, now it is time to complete the task and electrify the North. ***By electrifying the North, we can level the playing field and make sure that no Canadian is left behind in the transition to a cleaner, more prosperous future.***

Economic Prosperity Through Increased Cooperation

Throughout our history big nation building projects have come about as a result of passion, dedication and, most critically, cooperation. Each time our federal and provincial governments have come together to drive a common goal the result has been transformative – uniting our country, facilitating internal trade, and laying the foundation for a century and a half of economic prosperity.

Canadian electricity can play a critical role in nation-building efforts. We are once again at a transformative point in our history. Just as electrification changed our country over a hundred years ago, advances in technologies and attitudes are fundamentally changing how Canadians interact with their environment. Collaborative action on infrastructure, renewables, electrification of transportation, and energy efficiency are all necessary in order to usher in the future prosperity that Canadians expect and deserve.

“I commend CEA for taking this initiative to promote clean energy for our most neglected communities. We have a tremendous opportunity to deploy clean energy solutions to remote and northern communities and we must take every possible measure to make this a reality so that the people in these communities can also enjoy a higher quality of life similar to other Canadians”

CHRIS HENDERSON, AUTHOR, ABORIGINAL
POWER

Our country's enormous energy resource potential does not adhere to provincial or political boundaries. Rather, our greatest potential lies in taking a collaborative approach. This includes developing the East-West grid connection projects, so that all provinces can share in our considerable clean energy resources, and increasing interprovincial cooperation, like the recent energy agreement between the provinces of Quebec and Ontario.

A great first step was the integration of electricity into The Council of the Federation's Canadian Energy Strategy, released in 2015, which captured the importance of electricity in the economic life of Canada, and in the everyday lives of Canadians. To build and institutionalize this kind of cooperation, a joint Canadian Energy Strategy Implementation Working Group should be established, where the federal government could actively engage with the provinces and industry to ensure the successful delivery of priorities identified in the Strategy.

Federal and provincial collaboration is essential to continued growth and will be supported by a renewed federal-provincial relationship. It is only through this kind of collaboration will we see economy-wide benefits. ***By actively engaging the provinces, Canada can ensure that nation building projects get off the ground and that all Canadians share in their economic, social and environmental benefits.***

SUCCESS THROUGH COLLABORATION

The Maritime Link transmission project, being built by Emera Inc. consists of two 170-kilometer subsea cables that will deliver clean, emissions free, hydroelectric power from Newfoundland to Cape Breton.

This project will have nation-wide impacts as approximately 30% of Nova Scotia's power, mostly produced from coal, should be replaced by clean hydroelectricity. In fact, Nova Scotia's clean energy capacity is expected to rise to 50% of total by 2030.

While cooperation between Newfoundland and Labrador, and Nova Scotia, and the federal government were essential to getting the Maritime Link project off of the ground.

Enabling Clean Growth in the Electricity Sector

Canada's electricity sector sits at the nexus of economic growth and environmental protection. The continued modernization and evolution of the electricity system, followed by the electrification of high-emitting sectors, is the key to reducing emissions while promoting economic growth. Ensuring we remain at the forefront of clean electricity generation requires a functional and flexible operating environment.

Environmental Assessments: Ensuring Clean Growth

At their essence, environmental assessments (EA) are designed to find the balance between environmental protection and economic necessity in order to deliver the greatest return for Canadians. A well-functioning, predictable, credible and consistent EA process is of critical importance to all sectors as we invest in Canada's clean energy future.

Procedural delays and the duplication of provincial and federal requirements result in unnecessary barriers not only to the timely renewal of electricity infrastructure but to effective consultation processes. Set timelines, effective coordination between levels of government, and a limited number of Responsible Authorities and Agencies ensure that decisions are made expeditiously without increasing environmental, social or other risks.

The government is currently preparing to review the Canadian Environmental Assessment Act ("CEAA 2012"). The EA review must consider the impact of other, inextricably linked, statutes, policies and processes. Other issues that CEA sees as integral to the review process include:

1. Statutory approvals received subsequent to an EA decision must be consistent with and supportive of the intended environmental outcomes of the environmental assessment.
2. The process to ensure that information required is relevant and material must be refined.
3. Thresholds must be tied to the potential for adverse environmental impacts.
4. Closer cooperation is warranted between federal and provincial governments with respect to the process, what potential effects are considered and how those potential effects are evaluated.
5. The potential for greater federal involvement in assessments due to aboriginal interests must be carefully considered.

These issues speak to the importance of clarity, consistency, predictability, and efficiency of the regulatory process. If these attributes are weakened in the review and revision of CEAA 2012, Canada's electricity companies may not be able to make the investments required to ensure the delivery of safe, reliable, sustainable, and economically priced electricity to all Canadians. Moreover, the development of Canada's clean electricity resources, which will allow Canada to grow the economy while reducing GHG emissions, may become untenable.

Pricing Carbon: Reinvest in Canada's Clean Energy Economy

At the COP21 in 2015, Canada made an international commitment to reduce its GHG emissions by 30% over 2005 levels by 2030. Achieving these objectives will require a well planned and executed national policy framework. An economy- and continent-wide carbon price would maximize emission reductions at the lowest cost, while protecting our competitive position.

A price on carbon would also promote the behavioural, technological, and structural economic changes that are needed to further decarbonize Canada's economy, while providing stable, long-term signals to investors. This approach will only be sustainable and effective if it promotes further GHG reductions from all sectors while protecting vulnerable groups of the population. It will provide the greatest benefit to Canadians if the funds generated are reinvested in technologies, infrastructure, and programs to allow further decarbonization of Canada's economy while stimulating growth.

“Ramping up the stringency of policies over time will avoid unnecessary shocks to the economy, but will nonetheless encourage households and businesses to change their behaviours.”

ECOFISCAL COMMISSION

CEA's recommendation is to approach national carbon pricing by starting with a modest price on carbon or a modest requirement to decrease GHG emissions through a cap, and gradually increase the stringency of the cap or carbon tax. This would have a “priming” effect on the economy and send a signal to households and industry while allowing systemic changes to take place in a sustainable way.

An economy- and continent-wide carbon price should:

1. Ensure consumers become explicitly aware that any surcharges in their consumption of goods and services are due to a price on carbon, to ensure real change in behaviour.
2. Direct some of the revenues raised to protect vulnerable sectors of the population, for which it may be unfeasible to pay additional costs of living.
3. Ensure negative impacts on crucial industry sectors, such as the electricity sector, are minimized in order to minimize negative impacts on the overall economy.
4. Avoid duplicate efforts through federal or provincial regulations to ensure the sustainability of a carbon pricing system and protect economic growth.
5. Take the cost of compliance with other regulatory mechanisms into account to ensure federal carbon pricing act as a backstop to effective provincial initiatives or regulatory mechanisms, instead of compounding cost.

Grid resilience: Protect our Strategic Asset

The electricity network powers our offices and homes, our institutions and our assembly lines. It powers the way we work, live and play. It is indispensable to our lives.

Electricity reliability is under constant threat from a variety of vectors. Cyber terrorists try to access critical IT systems. Thieves break into substations to steal copper wiring. Storms threaten to take down tree limbs and flood underground equipment. Each of these threats are constantly evolving, and requires the active and ongoing vigilance of electricity companies.

The reality of long-term climate change also poses a serious threat to electricity reliability. Electricity infrastructure is already experiencing a range of minor and major impacts, which have both economic and social implications.

The data is unequivocal. Low probability, high impact events are increasingly likely. This includes the increasing frequency and magnitude of warm days and heat waves, more frequent precipitation extremes, and potential drought changes (reduced aridity in winter, increased aridity in summer).

The federal government has a critical leadership role to play in supporting a national vision and common understanding of climate change. A substantial and growing body of evidence indicates that the costs of inaction will exceed the cost of evidence-based adaptation investments. As Canada looks to renew or replace aging infrastructure, climate adaptation must be taken into consideration.

From 2003 to 2012 an estimated 679 widespread power outages occurred due to severe weather, costing the U.S. economy \$18 billion to \$33 billion each year between 2003 and 2013.

US QUADRENNIAL ENERGY REVIEW

A federal adaptation strategy should:

1. Be federally led and coordinated, as no sector nor province or territory will be able to adapt to climate change on its own.
2. Support the joint effort of electricity companies to better understand infrastructure vulnerabilities and develop tools to turn data into sound decisions. Support should include all three levels of government, system operators, electricity regulators, and customers.
3. Fund the scientists and researchers advancing the complex science behind climate change upon whose high quality, regional climate data, electric utilities, and many others rely.
4. Provide a strategic voice to support greater climate literacy among citizens, industry sectors, and regions.
5. Promote greater clarity and confidence in climate change data and the development of the corporate governance tools needed to better incorporate adaptation considerations into planning and infrastructure investment decisions and practices.

Ongoing Consultation: Delivering on our National Ambition

In creating public policy, political decision makers set the level of ambition, define the policy framework, and support key projects and initiatives. It is industry's role to invest, innovate, and ultimately implement and deliver on those ambitions. A balanced and pragmatic partnership, between governments and industry will lead Canada towards a greener and more prosperous future.

Transparent, inclusive processes empower real change. They provide electric utilities with the policy and regulatory certainty to change business models and pursue innovation and transformational investments. In addition, they give government continuous feedback on their plans and aspirations.

As federal and provincial governments wrestle with one of the most difficult public policy challenges of our time - climate change - we need now more than ever, a balanced dialogue and partnership between governments and industry.

Canada needs to establish a new and permanent Government and National Stakeholder Climate Forum. This Forum would bring together federal and provincial government officials, industry, NGO's, and Aboriginal interests in an effort to build a Canada-wide consensus. This is all the more important in a post COP 21 era.

Canada's electricity sector considers open and transparent engagement with Canadians and stakeholders of paramount importance. Successful, dedicated consultation and the resulting "social license to build", is the critical lynch-pin needed by industry to renew Canada's electricity infrastructure.

Stakeholder engagement is a key performance indicator in CEA's *Sustainable Electricity* program, an industry-wide sustainability initiative developed and implemented by CEA's members. Participation in *Sustainable Electricity* is a condition of CEA membership. CEA members engage customers, communities and stakeholders on a variety of issues ranging from new infrastructure projects, energy conservation, environmental impact mitigation, community development, and public electrical safety.

However, industry cannot act alone to achieve public support for key priorities such as electricity infrastructure renewal alone. Achieving "social license to build" requires a high level of public confidence in not only electric utility objectives but in the project approval processes and the broader national vision that underpins it. Through balanced, pragmatic and meaningful consultation, between governments and industry, Canada's electricity sector will continue to deliver reliable and sustainable electricity for generations to come.

The mission of the Forum would be to help build common ground and a national consensus. To ensure a coherent, cohesive, and viable climate change strategy that will guide actions and pinpoint opportunities. The vision would be a sustainable economy for all Canadians, today and for generations to come.

HON. SERGIO MARCHI, CEA PRESIDENT AND CEO

The Power of Canadian Electricity

Canada's future prosperity will be built upon a foundation of clean, sustainable growth.

Investments in Canada's electricity system grow the economy. They create good jobs, promote clean economic growth and ensure businesses and households benefit from access to safe and reliable energy. But not at the expense of the environment. The electricity sector has reduced emissions by nearly 30% since 2005, and it is set to do the same again by 2030.

The Canadian electricity sector is Canada's clean energy solution, and provides us with a strategic advantage over all but a few countries. To press this advantage, Canada needs to invest in tomorrow's energy systems today.

We need to build a smarter, strong and more responsive electricity system; we need to electrify high-emitting sectors, at home and across North America; we need to institute effective and credible assessment, permitting and exporting processes; and we need to promote innovation and experimentation in order to find the next game-changing technology.

It is time to seriously consider an economy- and continent-wide carbon price that will drive real change while protecting the competitive position of Canadian companies. It is time to prepare for the impacts of climate change in a systematic way. It is time to establish a permanent, transparent and inclusive consultation process that will empower all Canadians. And it is far past time to bring affordable, reliable energy - and its many social and economic benefits - to every Canadian regardless of where they live.

Finding the balance between economic and environmental outcomes is a generational challenge. By harnessing the power of clean, safe and reliable electricity, Canada can not only meet this challenge but turn it into opportunity – for this generation and the next.



Annex A: Seizing Opportunities

CEA has identified below key steps to help Canada seize the social and economic opportunities of electrification. Taken together, these recommendations lay out a road map to increased growth, reduced emissions, and a more prosperous future for all Canadians.

By investing in electricity infrastructure we can continue to be among the world's leaders in the production of the clean, reliable and sustainable electricity that Canadians rely on every day.

A national infrastructure renewal plan should:

1. Encourage efficient stakeholder processes that allow electric utilities to secure political and public acceptance for projects.
2. Encourage efficient and proportional regulatory reviews of funding applications.
3. Facilitate strong collaboration between and among government bodies and with electric utilities.
4. Provide support for electric utilities to mitigate threats to the system.
5. Acknowledge the long term planning horizon required for large scale infrastructure investments.

By electrifying transportation, buildings and industrial processes we can significantly reduce our emissions, drive energy efficiency and create good, green jobs right across the country.

A national plan to electrify transportation should:

1. Promote the electrification of transportation through fleet adoption.
2. Tax the sale of traditional engines and reinvest to subsidize electric vehicle purchases.
3. Fund the electrification of rail transportation through the Public Transportation fund or the Green Infrastructure fund.
4. Include a North American Auto Pact.

A national plan to electrify buildings and industrial processes should:

1. Fund research and development in thermal electric storage technologies to encourage the cost-effective electrification of space heating.
2. Incent the installation of heat pumps through Canada's tax code.
3. Fund research and development to encourage cost-effective electrification in the industrial sector.

By facilitating the increased exportation of clean, affordable and reliable electricity to the United States, Canada can contribute to our own economic prosperity while helping our neighbours meet their emission reductions goals.

A national plan to increase international electricity trade should:

4. Decrease or eliminate trade barriers.
5. Modernize outdated permitting processes for authorizing exports.
6. Set a continental standard for the electrification of transportation.
7. Institutionalize the importation of clean electricity across international borders as an acceptable strategy for meeting domestic carbon reduction goals.
8. Increase bilateral and trilateral cooperation in streamlining the permitting processes governing major cross-border projects.

By addressing existing regulatory and policy gaps, we can incentivize Canadian utilities to launch pilot projects and conduct technology trials that will help reduce emissions, increase efficiency and make Canada a leader in the high-margin knowledge-economy.

A national plan to increase electricity sector R&D should:

Offer direct funding to the most promising areas, such as:

- Carbon capture and storage;
- Grid integration of distributed energy resources;
- Grid scale storage;
- Grid integration of electric vehicles;
- Demand response;
- The optimization of asset use; and,
- Fault detection and mitigation.

Promote key partnerships by:

- Bringing government decision makers, electricity companies and innovative suppliers together for a strategic discussion regarding how the regulatory gap can be bridged.
- Integrating the Mission Innovation goals and aspirations into government programs and policies.
- Ensuring that the mandates of NSERC, SDTC, NRC and R&D divisions of NRCan have the electricity system and electrification as central to their research mandates.

By investing in energy efficiency and conservation programs Canada can increase productivity, decrease energy consumption and help Canadians meet their commitment to the environment.

A national plan to increase energy efficiency and conservation should:

1. Place equal emphasis on demand and supply. To date, energy policy has been almost wholly focused on supply.
2. Set the long term and sustained commitment required to effect behaviour change and solicit engagement from effective partners and delivery channels.
3. Measure program effectiveness and results against the full suite of benefits as a focus solely on GHG reductions may underestimate significant cost savings and other benefits to Canadians.

By electrifying the North, we can level the playing field and make sure that no Canadian is left behind in the transition to a cleaner, more prosperous future.

A national plan to electrify our northern and remote communities should:

1. Ensure collaborative solutions are determined by all levels of governments, energy regulators, utilities (including independent power producers), Aboriginal Peoples, and other stakeholders.
2. Promote joint investments with industry in hydro, wind, solar, biomass, geothermal, fuel cell and storage technologies suitable for northern conditions.
3. Provide policy and regulatory support for building and/or upgrading generation and transmission links to support large resource projects and regional economic development opportunities.
4. Provide funding and/or tax incentives for micro-grid applications where interconnection is not feasible due to geographic, climate and other conditions.
5. Establish a “remote and northern community clean energy clearinghouse” to help facilitate energy literacy and conservation, energy poverty reduction initiatives, technical proficiency, and exchange of best practices on the deployment of clean energy technologies in remote communities.

By actively engaging the provinces, Canada can ensure that nation-building projects get off the ground and that all Canadians share in their economic, social and environmental benefits.

An institutionalized federal-provincial collaboration plan should:

1. Establish a “Joint Canadian Energy Strategy Implementation Working Group” that includes the federal and provincial levels of government, in order to facilitate cross-jurisdictional implementation of the Canadian Energy Strategy.

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2. Renew federal engagement with the provinces on energy and the environment through the Council of the Federation's Canadian Energy Strategy and fund a report on "Joint Federal-Provincial Policy Mechanisms Available for the Support of National Energy Infrastructure Projects".
 3. Hold a national "Energy Infrastructure Stakeholder Forum", with both federal and provincial government officials present, in order to prioritize large national energy infrastructure projects.
 4. Institutionalize a more adaptive regulatory environment, and broaden the mandate of regulators to include the promotion of innovation and engagement with utilities on how to stimulate research and development.
 5. Take a balanced approach to energy market diversification, taking the impacts to the integrated North American grid as well as Canadian electricity exports to the U.S. into consideration.

By building a predictable and credible environmental assessment process, Canada can find the balance between environmental protection and economic necessity in order to deliver the greatest return for Canadians.

When reviewing the the Canadian Environmental Assessment Act ("CEAA 2012") the Government should consider other issues integral to the review process, such as:

1. The impact of other statutes, policies and processes which are inextricably linked to EA.
2. Statutory approvals received subsequent to an EA decision must be consistent with and supportive of the intended environmental outcomes of the environmental assessment.
3. The process to ensure that information required is relevant and material must be refined.
4. Thresholds must be tied to the potential for adverse environmental impacts.
5. Closer cooperation is warranted between federal and provincial governments with respect to the process, what potential effects are considered and how those potential effects are evaluated.
6. The potential for greater federal involvement in assessments due to aboriginal interests must be carefully considered.

By establishing an economy- and continent-wide carbon price we can maximize emission reductions at the lowest cost, while protecting the competitive position of our companies.

An economy- and continent-wide carbon price should:

1. Ensure consumers become explicitly aware that any surcharges in their consumption of goods and services are due to a price on carbon, to ensure real change in behavior.

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2. Direct some of the revenues raised to protect vulnerable sectors of the population, for which it may be unfeasible to pay additional costs of living.
 3. Ensure negative impacts on crucial industry sectors, such as the electricity sector, are minimized in order to minimize negative impacts on the overall economy.
 4. Avoid duplicate efforts through federal or provincial regulations to ensure the sustainability of a carbon pricing system and protect economic growth.
 5. Take the cost of compliance with other regulatory mechanisms into account to ensure federal carbon pricing act as a backstop to effective provincial initiatives or regulatory mechanisms, instead of compounding cost

By preparing for climate change via adaptive measures, Canada can help mitigate its social and economic impacts.

A federal adaptation strategy should:

1. Be federally led and coordinated, as no sector nor province or territory, will be able to adapt to climate change on its own.
2. Support the joint effort of electricity companies to better understand infrastructure vulnerabilities and develop tools to turn data into sound decisions. Support should include all three levels of government, system operators, electricity regulators, and customers.
3. Fund the scientists and researchers advancing the complex science behind climate change upon whose high quality, regional climate data electric utilities, and many others, rely.
4. Provide a strategic voice to support greater climate literacy among citizens, industry sectors, and regions.
5. Promote greater clarity and confidence in climate change data and the development of the corporate governance tools needed to better incorporate adaptation considerations into planning and infrastructure investment decisions and practices.

By adopting a balanced, pragmatic and consultative approach, between governments and industry, Canada can empower real change here and around the world.

A Government and National Stakeholder Climate Forum should:

1. Be permanent and bring together federal and provincial government officials, industry, NGO's, and Indigenous interests.
2. Nurture a high level of public confidence that will form the foundation of a "social license to build".