

Canadian Electricity
Association

**Making the Right Choices; ●
Securing Canada's Electricity Future**

CEA Brief to the 2005 Council of Energy Ministers

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Canadian Electricity Association

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Canadian Electricity Association
Association canadienne de l'électricité

I. Introduction

Ensuring a strong, sustainable and secure electricity industry in Canada is at the heart of our prosperity and economic security. Canada needs to invest in the sophisticated technologies that underpin today's electricity industry in order to build on existing strengths and remain at the leading edge. Growing electricity demand and environmental expectations require that all generation technologies – traditional and new, large and small – be available in the marketplace. Substantial investment in modernizing and extending the transmission and distribution networks will also be needed to ensure the overall reliability and security of this complex, real-time system.

Clear energy policies as well as a timely and efficient regulatory framework are critical to attracting investment in our sector's full set of emerging and traditional technology options. Accordingly, CEA endorses the Energy Dialogue Group's (EDG) call for governments and industry to develop an energy framework for Canada that would help make energy development a priority, promote energy efficiency, introduce efficiencies to the regulatory regime, encourage technology development and deployment as well as help industry deal with labour shortages.

This brief will serve to point out why such a framework is critical from the electricity sector's perspective by highlighting the supply/demand balance, investment and labour challenges facing the electricity sector. In addition, this brief points out the challenges to technology development and deployment, as well as the opportunity for energy efficiency/DSM to complement supply investment options. Finally, this brief discusses the Canadian Electricity Association's (CEA) Five Point Plan designed to meet those challenges, and highlights the progress made under a number of initiatives.



Meeting Canada's Electricity Needs

Canada's electricity sector will need to build infrastructure to meet future demand growth and upgrade or replace much of the generation, transmission and distribution capacity built in the last 50 years. Replacing or refitting old power plants, achieving environmental approvals to build new facilities on new sites, ensuring the transmission and distribution infrastructure keeps pace with electricity generation, and developing new technologies to minimize environmental impacts and maximize efficiency all take time and significant capital investment. **If we do not succeed today in attracting the necessary investment to finance tomorrow's electricity infrastructure, Canada's competitive economy and standard of living are at risk.**

Canada's electricity sector needs to compete in an international capital market where demand for electricity investment worldwide is growing. The International Energy Agency (IEA) estimates that over the next 30 years, the need for investment in the electricity sector worldwide will approach US\$10 trillion (Fig. 1), with US\$1.7 trillion required in the U.S. and Canada.

Although Canadian electricity prices have been stable relative to other energy components (Fig. 2), the forecasted supply/demand balance threatens this stability.

As electricity demand steadily increases and supply tightens, Canadian consumers will face increasing prices and Canada's current competitive advantage (Fig. 3), as underpinned by reasonably priced electricity, may be impacted.

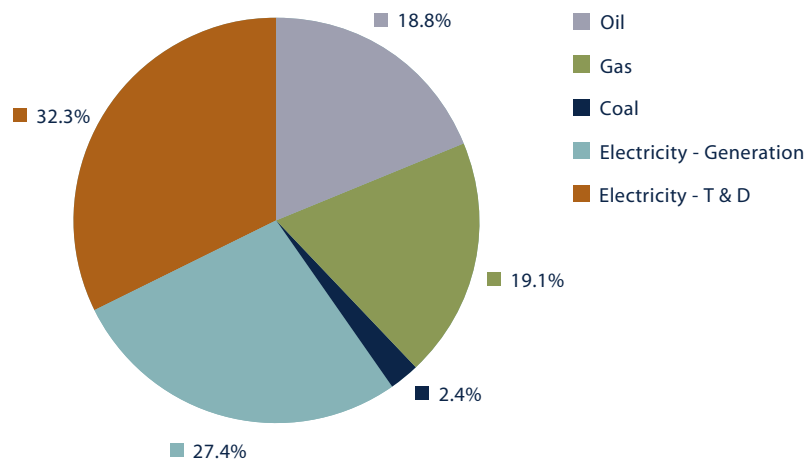
Implementing a comprehensive approach to ensuring a strong, sustainable and secure electricity industry in Canada requires urgent action on the part of governments and industry to foster an environment conducive to greater investment in conventional and emerging generation, transmission and distribution technologies. Aggressive action is also required to promote demand side management (DSM) and energy efficiency initiatives, foster advanced technology development and deployment, introduce more efficient and clear regulatory regimes, improve reliability standards and address sector-wide human resource challenges.

II. Meeting Future Electricity Demand

1. Rising Demand

Although the Canadian economy continues to demand less energy for every additional million dollars of Gross Domestic Product (GDP), the demand for electricity continues

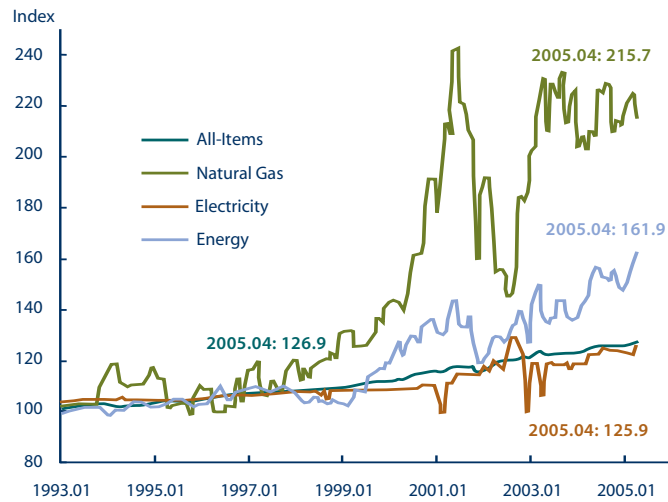
Figure 1: Percent of World Energy Investment to 2030 Required by Sector



Source: IEA, *World Energy Investment Outlook 2003*, p.48, 353



Figure 2: Consumer Price Index, Energy Components and All-Items, 1993-April 2005



Source: Statistics Canada

2001 basket, 1992=100

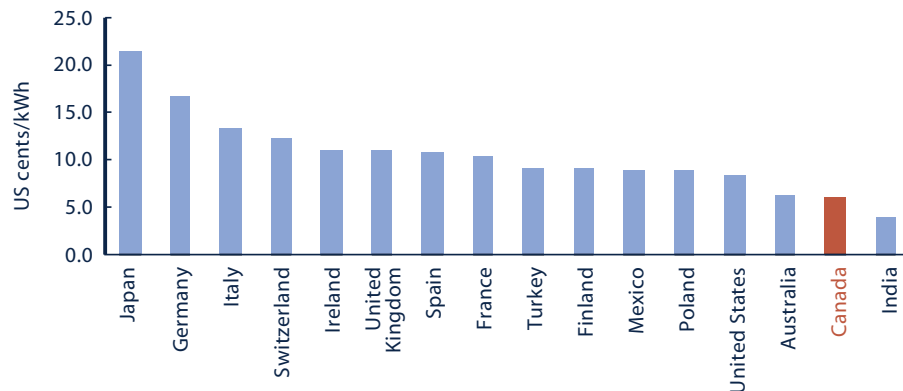
to grow on an absolute and on a per capita basis. From 1990 to 2003, Canada's total domestic electricity demand grew 19.5%. Despite gains in energy efficiency, national demand is projected to grow at an average annual rate of 1.0-1.5%. Based on such projected demand figures and relatively modest technological change, the National Energy Board (2003) projects Canadian electricity generation must increase still further to 870 TWh by 2025 (Fig. 4).¹

Generation, transmission and distribution investment decisions must be made to meet this future challenge in a context where much of the existing infrastructure will be retired or renewed over the forecast period.

2. Investment in Generation

Investment in generation nationally must account for both refurbishment of existing facilities and the addition of new generation

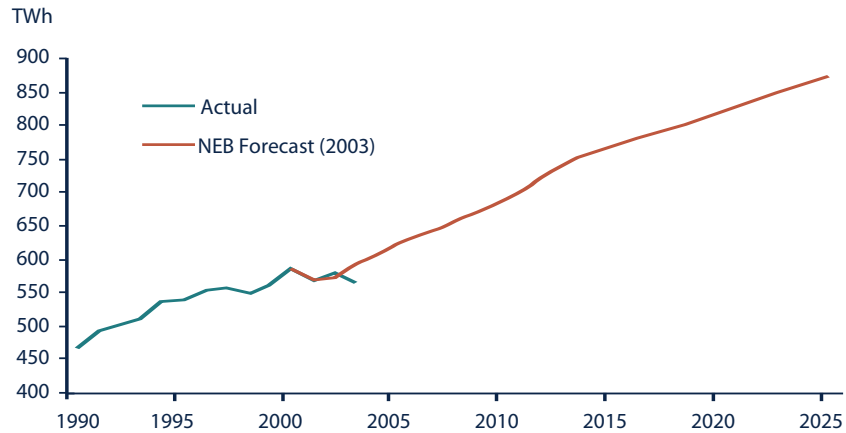
Figure 3: Residential Electricity Price by Country



Source: Key World Energy Statistics 2003, IEA

¹ National Energy Board. 2003. *Canada's Energy Future: Scenarios for Supply and Demand to 2025*

Figure 4: Actual and Forecasted Electricity Generation, Canada (TWh)



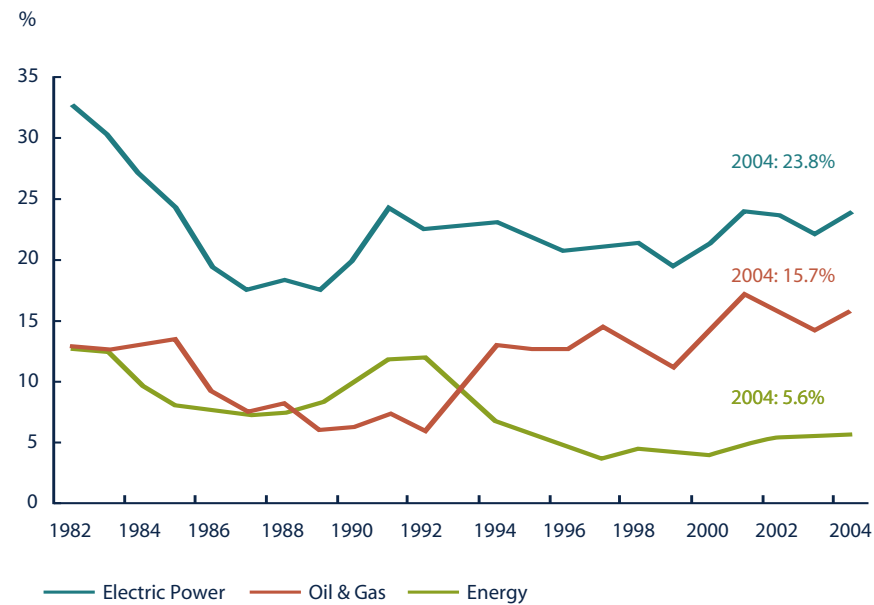
Source: Statistics Canada, Survey 2151; National Energy Board (2003) *Canada's Energy Future*, Table A4.2.12

facilities. For example, Ontario accounts for about a third of total electricity generation in Canada and about 40% of the country's population. Given the provincial government's commitment to shut down Ontario's coal-fired generation, the supply gap will need to be filled through DSM, energy efficiency, and new generation. **Given long planning and construction lead times, ensuring an efficient,**

diverse and reliable future power supply depends on today's investment decisions.

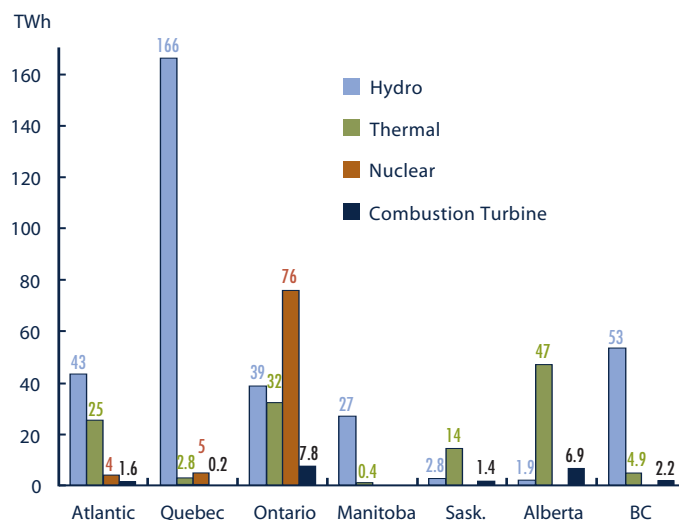
Ontario's supply/demand challenge is mirrored in varying degrees across all Canadian jurisdictions. Meeting tomorrow's electricity demand will mean new generation in addition to energy efficiency and DSM measures. To ensure sustainability and

Figure 5: Energy Sector Investment as a Percent of Total Canadian Capital Investment



Source: Statistics Canada

Figure 6: Electricity Generation (TWh) by Type and Province, 2004



Source: Statistics Canada, Survey 2151

reliability, this new supply will also need to be met by a broad spectrum of fuel types. Opportunities for fuel diversity will vary significantly across the country, depending on a number of factors, including fuel availability, geography, environmental concerns, technical feasibility and reliability, market structure and political climate. The geographic diversity of supply type is illustrated in Figure 6.

The electricity sector encourages opportunities for market access of energy generated from emerging renewable energy sources (e.g. wind, solar, biomass, biogas, small hydro-electric). CEA member companies, over the course of the last decade, have become large developers of wind power in Canada. Canadian electricity companies are actively pursuing new and larger applications of wind technology across the country. Our companies continue to move aggressively to increase installed wind capacity, with annual growth rates averaging about 26% since 2000 to approximately 570 MW in June 2005. Wind farms represent a significant development in Canada's energy infrastructure and will grow substantially in years to come based on announced and impending projects. For instance, about 1600 MW of wind generation are under construction or planned for 2005-06,

likely to be on stream by the end of 2007. CEA welcomed measures introduced in Budget 2005 to increase the Wind Power Production Incentive (WPPI) and introduce the Renewable Power Production Incentive (RPPI). However, our companies view wind generation as one component of a suite of conventional and emerging technology options necessary to maintain diversity and help optimize the fuel mix and economic performance of the nation's power generation fleet.

3. Investment in Transmission and Distribution

Meeting Canadian electricity demand into the future will require significant investment in Canada's transmission and distribution infrastructure. Investment in new power generation is predicated on a reasonable expectation that power can reach consumers cost-effectively. As it becomes increasingly difficult to acquire new rights of way for green-field transmission builds, the sector must also invest in new technologies in order to increase the capacity of existing transmission corridors and to optimize the national grid. As the August 2003 blackout clearly illustrated, a reliable transmission system is vital to serve both domestic and North American power markets.

The IEA estimates that the investment requirement in transmission and distribution in Canada and the United States will reach US\$910 billion by 2030.² Such investment in Canada is critical in delivering electricity for both domestic use and export. The Conference Board of Canada recently identified a number of impediments to investment in Canada's transmission infrastructure, although these impediments apply to non-transmission assets as well. The impediments include: long planning horizons to obtain regulatory approval; low regulated rates of return for investors when compared to the United States; and regulatory uncertainty in the face of continuing market restructuring.³ **Canada must maintain a strong domestic electricity system while strengthening its role within North American institutional arrangements for ensuring system reliability, critical infrastructure protection, and efficient large regional wholesale markets.**

Canada's existing distribution infrastructure was designed to move electricity one way from transmission lines to end-use consumers prior to the astounding advances of the information age. Now, the end-use electricity market consumer is increasingly digital-dependent as illustrated by the penetration of electronic devices in the home and office. The current distribution system is challenged to deliver high-value bundled services to an increasingly segmented consumer base, for instance, by delivering in the future both electric and telecommunication technologies such as broadband over power line (BPL) communications. Such advances in communication technologies mean that the distribution system is called upon to deliver an increasingly high standard of power quality. Consumers are not only demanding a high service standard, some are also interested in selling surplus power back to the grid. As more micro-generation technologies reach commercial viability and are connected to the distribution grid, the volume of two-way

power flow will increase. Such distributed resource technologies will alter the traditional regulated electricity business by bypassing the installed infrastructure and using the distribution system as a backup service.

Distribution utilities must adapt to stay competitive in this new environment. **To meet customer expectations and maintain reliability, the distribution system will need to manage electricity flows in real-time using an intelligent, reliable two-way distribution infrastructure to support a digital society.** The power network of the future will be real-time, responsive, adaptive, eco-sensitive, flexible, price-smart, self-diagnosing, self-healing and interconnected with everything else. Meeting this challenge will require significant investment in such initiatives as distribution automation and automated metering technologies (AMT).

While there have been incremental improvements in the distribution system and equipment, Canada's distribution assets have not experienced revolutionary change in the past 50 years. Many Canadian utilities will face massive infrastructure upgrading to automate their distribution grid. A "smart distribution network" is necessary to support both the digital society and the interconnection of distributed resources. **The investment requirements for the smart distribution network in Canada are estimated to be about \$48 billion over a 10-year period and would add approximately 18,000 jobs in manufacturing in Canada, based on productivity figures from Industry Canada.**⁴

Governments at all levels are continuing to push distribution companies for improvements in reliability, cost of service, power quality, consumer service and safety. The regulatory treatment of industry investment in technology discourages innovation, and this lack of investment is problematic as the distribution infrastructure ages.

² International Energy Agency; *World Energy Investment Outlook 2003*; page 353

³ The Conference Board of Canada; *Briefing March 2004: Electricity Restructuring, Opening Power Markets*; page 2-5

⁴ Capgemini; *Electric Distribution Utility Technologies Implementation Issues*; Report prepared for the Canadian Electricity Association, June 2004.



CEA is recommending a distribution utility-supplier-government partnership to accelerate innovation, investment and implementation for electricity distribution infrastructure automation, AMT technology, BPL communications services, distributed resources interconnections, as well as regulatory innovation in support of sustainable development, customer choice and economic opportunities for Canada.

4. Investment to Reduce our Impact on the Environment and Improve Efficiency

At the present time, there is no technology available to deliver electricity at the scale society requires without having some impact on land, water, air, habitat, and/or local communities. Due both to regional natural resource endowments and the economics which favour maintaining a diverse fuel portfolio, electric power production in Canada is a multi-fuel exercise. The prominence in Canada of hydroelectric power (59% of generation), and significant nuclear power (15% of generation) means that much of Canada's energy requirements are met without producing greenhouse gases or air emissions. Moreover, Canada's abundance of hydroelectric power serves to produce both economic and environmental benefits in the U.S. For instance, power producers coordinate exchanges between "must-run" fossil-fuel fired generation facilities and hydroelectric facilities. This involves a generator selling off-peak power to a hydro generator, allowing the latter to "bank" energy (in the form of stored water) in its reservoirs. During periods of high demand, the hydro generator releases enough water to meet its own needs and to assist in meeting the peak demand of its partner in this diversity exchange, thus avoiding both emissions and higher costs from fossil peaking units. Such opportunities exist to some extent in each of the regional markets across the continent.

In order to decrease the sector's overall impact, support is needed for ongoing efforts to improve the performance of existing technologies, and also support for new technologies that have a smaller footprint. **Accordingly, government and industry must move more aggressively to promote the development and deployment of energy efficiency and DSM initiatives, as well as innovative technologies such as clean coal and CO₂ sequestration.**

4.1 Clean Coal

Coal is an affordable, secure and abundant fuel in Canada. In the interest of maintaining supply diversity and a cost-effective fuel option, Canadian electricity producers are expending significant effort to develop technologies that will dramatically reduce the environmental impact of coal combustion.

Representing 90% of Canada's coal-fired electricity production, the Canadian Clean Power Coalition (CCPC) is exploring the commercial viability of existing clean coal technologies. After a series of extensive technical feasibility studies to evaluate all available technologies for CO₂ capture, the CCPC estimates that the cost to produce electricity with CO₂ capture would be 50% higher than current rates.⁵ Current research by the CCPC indicates that the costs of CO₂ capture are quite variable and depend highly on the type of coal used in power generation.⁶

Further progress toward the establishment of a demonstration project to explore the feasibility of air emissions and CO₂ reduction technologies on a Canadian coal power plant will require "a substantial effort from industry and government".⁷ As the economics of retrofitting an existing plant with CO₂ capture technologies are currently prohibitive, a future demonstration project will likely be a green-field plant and require significant capital investment.

⁵ CCPC Phase I Executive Summary: Summary Report on the Phase I Feasibility Studies Conducted by the Canadian Clean Power Coalition, May 2004, page 4 (available at www.canadiancleanpowercoalition.com)

⁶ Report for the Executive Committee of the IEA Greenhouse Gas R & D Programme, *Canadian Clean Power Coalition Studies on CO₂ Capture and Storage: Report Number PH4/27*, March 2004, page ix.

⁷ CRI Consulting, *CCPC Phase I Final Report: Summary Report on Conceptual Engineering and Feasibility Studies conducted by the Canadian Clean Power Coalition, February 2004, page 9*



4.2 Stewardship and Habitat Management

Of particular relevance to hydroelectric generation is the effort currently underway between CEA and the Department of Fisheries and Oceans (DFO) through their joint Memorandum of Understanding (MOU) aimed at improving the management of fish and fish habitat resources. Under the MOU, CEA and DFO are developing interpretation bulletins to bring clarity, consistency, and efficiency in the application of the Fisheries Act – the most significant piece of environmental legislation for hydroelectric generators. The MOU builds on initiatives under way province by province where electricity generators are having to balance their use of water with the needs of other stakeholders needing access to this precious resource. The Water Use Planning process in British Columbia is one example.

4.3 Energy Efficiency

Current energy efficiency programs have contributed to a decline in the energy intensity of Canada's economy (Fig. 7). In 2004, it took 19% less energy than in 1990 to contribute an additional \$1 million to Canada's GDP. However, per capita energy use over the same period increased about 4%. It appears that Canadian's electricity use is more economically productive; however, the overall demand for electricity continues

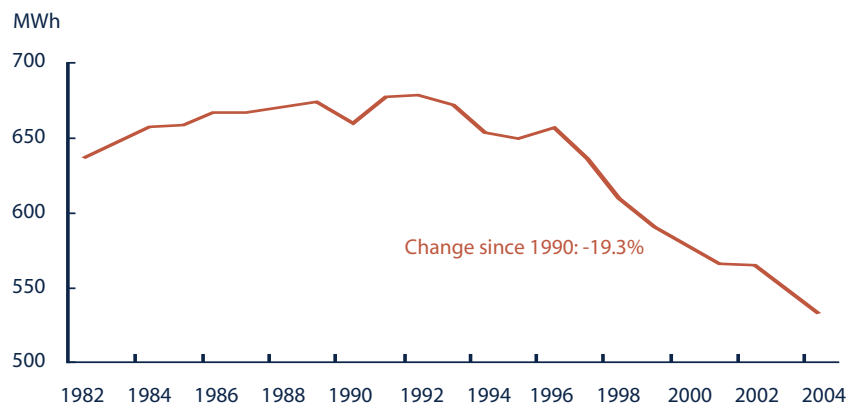
to increase. The challenge is to accelerate energy efficiency as a means of moderating demand growth.

Energy efficiency is an effective strategy to help meet demand, moderate the impact of rising real prices that better reflect the actual cost of electricity, reduce energy use, minimize emissions and improve economic competitiveness. A recent study "EE/DSM Potential in Canada" supported in part by CEA shows that Canada's electric utilities have long been delivering energy efficiency/DSM programs. However, in order to take full advantage of the energy efficiency opportunity, more is needed. **A commitment to go beyond incremental increases in energy efficiency is required. This includes reliable long-term funding commensurate with supply options and alignment of policy and regulatory frameworks.**

5. Investment in a more clear and efficient regulatory regime

As noted earlier, Canada's electricity sector must compete in an international capital market where demand for electricity investment worldwide is growing. The electricity sector operates in a complex regulatory environment, involving all levels of government on a number of issues, from financial to environmental. While the electricity sector accepts and supports regulation that addresses the environmental, economic,

Figure 7: Canada's Energy Intensity, 1982-2004, MWh per C\$Mn GDP



Source: Statistics Canada, CANSIM tables 127-0001 and 379-0017



health and safety interests of Canadians, needless complexities in regulatory processes create uncertainty and act as a barrier to investment. **As a result, CEA continues to advocate efficient, effective, timely and coordinated approaches to electricity regulation in Canada.**

In addition, regulatory decisions should provide clear and certain long-term direction for proponents. The system should also be accountable, with opportunities for meaningful stakeholder engagement with regulators providing regular business plans with stated performance objectives and targets. As the industry moves ahead with green-field development and projects in more remote locations, aggressive action to implement a more efficient regulatory regime will help address key environmental and socio-economic issues, including First Nations' land matters.

CEA welcomed the federal government's Speech from the Throne pledge to make the regulatory regime more efficient, particularly the environmental regulatory regime, with improvements to the environmental assessment (EA) process playing a central role. **CEA encourages the federal government to continue to explore means to consolidate and coordinate federal EAs. Greater certainty around the timelines for EA, the scope of information required, and the degree and quality of public engagement will make the process more effective and efficient for both project proponents and regulatory authorities. Simplified reporting mechanisms and increased coordination among federal authorities and the provinces are key mechanisms to support improvements in efficiency.** As the Canadian Environmental Assessment Agency reexamines its role in fulfilling the Speech from the Throne pledge, **CEA encourages the Agency to also focus on measuring the success of the current mechanisms in place to achieve the objective of increased EA efficiency.**

The External Advisory Committee on Smart Regulation (EACSR), in its report *Smart Regulation: A Regulatory Strategy for Canada*, cited CEA's MOU with Fisheries and Oceans as showing "real promise as a means of achieving mutual understanding and ensuring clarity, consistency and coherence in the implementation of Federal environmental laws and regulations". CEA hopes that its work with DFO will serve as a benchmark for industry/government collaboration.

6. Investment in our work force

In 2004, CEA conducted an assessment of Canada's electricity industry labour force. Findings demonstrate that retirement in the electricity sector will have a substantial impact on the industry. Seventeen percent of the existing workforce is eligible to retire in the next four years and nearly 40 percent will be retirement-eligible by 2014. These results indicate a significant potential shortfall in labor supply for the Canadian electricity industry in the next nine years. The retirements will impact at the point when significant electricity infrastructure replacement and new capacity development is needed. Without remedial action, projects could be impacted by a lack of skilled labour. **To support workforce development for the industry and to ensure an ongoing labour force supply, CEA is collaborating with the Electrofederation, the Canadian Nuclear Association, the Canadian Union of Public Employees, the International Brotherhood of Electrical Workers, the Society of Energy Professionals and other key stakeholders to create an Electricity Human Resources Sector Council.** The Sector Council, an independent not-for-profit organization, will bring together key stakeholders to address HR issues such as recruiting and retaining workers, facilitating school-to-work transitions, and developing sector and career awareness strategies.



III. Implementing the Five Point Plan: Status of Initiatives

Moving forward, governments and industry need to cooperate within the context of a comprehensive policy framework to develop and implement a common agenda that promotes policy certainty, predictability and investor confidence. The member companies of CEA are committed to working with the government on this agenda. CEA has developed and is currently implementing a five point plan to meet these objectives.

i) Establish An Investment Climate to Ensure Future Electricity Supply

Through public financing, governments built a large portion of the electricity sector's current capital stock. Today, the investment required to meet Canada's future electricity needs comes predominantly from the private capital markets. However, governments continue to have an important role to play in encouraging a sound investment climate through their fiscal policies. In addition, governments can help foster investment by ensuring regulatory regimes are efficient, timely and predictable. Time consuming regulatory complexities create uncertainty and act as barriers to investment, particularly as the international capital market demand for electricity investment continues to grow.

Fiscal measures introduced in the last federal Budget, such as the new 8 percent Capital Cost Allowance (CCA) rate for transmission and distribution equipment, were welcomed by the electricity industry. CEA was also pleased that Budget 2005 increased the CCA rate for combustion turbines that generate electricity (from 8 percent to 15 percent) and introduced measures to broaden Class 43.1 of the Income Tax Act. Moving forward, **CEA believes that further action is required to ensure that (CCA) rates are better aligned to the useful life of assets to support productivity growth. Moreover, CCA rates must also reflect environmental objectives by better aligning the economic life of assets with environmental performance regulation.**

Investors need to see reasonable rates of return on regulated assets in order to play a role in furthering the development of Canada's electricity infrastructure. CEA continues to believe that it is important to invest in tomorrow's technologies. **Incentive tax rates will be helpful in attracting needed investment to support emerging technologies, such as smart meters, clean coal and smart transmission and distribution systems.**

ii) Move Government and Industry Towards Smart and Effective Regulation

The electricity sector operates in a complex regulatory environment, involving all levels of government on a number of issues, from financial to environmental. As noted above, needless complexities in regulatory processes are a barrier to investment in the electricity sector. Smart, effective and timely regulation and administrative processes for projects are required to bring new projects on-line more quickly, to enhance the ability of domestic supply to meet demand, and to support more efficient operation of existing facilities. As noted above, CEA encourages the federal government to continue to explore means to consolidate and coordinate federal environmental assessments. **Simplified reporting mechanisms and increased coordination among federal authorities and the provinces are key mechanisms to support improvements in efficiency.**

The MOU with DFO referenced above is a clear example of such efforts. The interpretation bulletins that are under development through this process incorporate a Risk Management framework developed by DFO that assesses the relative impact on fish habitat that certain industry activities may have and the necessity of DFO intervention. A joint CEA-DFO team continues to negotiate the content of the first bulletin, on fish passage, and completion is expected in late 2005. It is expected that the bulletins will provide a "smarter" regulatory framework with faster referral turnarounds and lower administrative burden for low-risk industry activities.

iii) Work to Ensure a Sustainable Future for the Next Generation

CEA has long advocated that environmental initiatives must be undertaken in the context of an overarching and well-informed energy policy and business management framework to ensure that industry obligations are realistic, balanced, and equitable. One step towards striking a business-environment balance has been the adoption by CEA member companies of an ISO 14001-compliant environmental management system.

CEA member companies are actively engaged in managing the impact of the electric power sector on the environment. For instance, companies that generate electricity from coal established the CEA Mercury Program, which was endorsed by the Canadian Council of the Ministers of the Environment. A key task of the Program is to reduce the significant scientific uncertainties concerning the measurement of mercury emissions from coal fired generation. Through a scientific testing program and quarterly clearinghouse reports on mercury control strategies and technologies, the CEA Mercury Program has helped improve the knowledge base on mercury related issues. In addition, all CEA members take part in the Environmental Commitment and Responsibility (ECR) Program as a requirement of CEA membership. The ECR Program promotes effective environmental management and continual improvement while reporting on environmental performance. **The ECR Program brings together representatives of all member companies to discuss the industry's key environmental priorities, such as climate change, air quality, energy efficiency and species stewardship; and the ongoing initiatives to address them.** ECR reporting will move online in 2005 to allow a wider range of stakeholders to access information on the ECR Program and its performance indicators in a more timely, effective and efficient manner.

In collaboration with other industry associations and federal and provincial governments,

CEA is taking a leadership role in advancing energy efficiency in Canada. CEA is a member of the ADM Steering Committee on Energy Efficiency (ADMSCEE), whose formation was mandated in 2004 by the CEM. The vision of the ADMSCEE is to develop a common agenda for the country on energy efficiency opportunities, activities, policy and regulatory frameworks through commitment, leadership and alignment in key areas. **Early action items which have been identified include two foundation studies on energy efficiency potential and measurement and reporting, as well as updating of the energy efficiency content of building codes.**

iv) Foster Innovation and Accelerate Skills Development

CEA continues to advocate for government action in support of clean coal technology development and carbon capture and storage. Given the existing regional resource endowments, CEA is working with government to make clean coal development a priority under the revised climate change plan. CEA is also investigating options for accessing SR&ED Income Tax Credits for clean coal plants. **Clean coal technology and carbon capture and storage holds promise of effectively eliminating all emissions from fossil fired production. In addition, aggressive action is required to encourage the adoption of new and emerging technologies, including constantly improving wind power, ever more efficient gas turbines, distributed generation options, automated distribution technologies as well as the application of more energy efficient electricity consuming technologies in industry, business and homes. These and other technologies present a unique opportunity for Canada to support innovation and establish technology leadership.**

As noted above, CEA's assessment of Canada's electricity industry labour force demonstrates that retirement in the electricity sector will have a substantial impact on the industry. CEA is currently in the process of

creating a Human Resources Sector Council and will work with key stakeholders to develop strategies to mitigate risk to the industry due to the aging workforces.

v) *Build on the Strengths of the Integrated North American System to Maximize Opportunity for Canadians*

The blackout of August 2003 illustrated the degree to which Canadian and American electricity systems have become integrated in order to serve large wholesale markets efficiently. It is important that governments and the electricity sectors of both countries respond in a way that strengthens North American institutional arrangements.

CEA agrees the traditional system of voluntary reliability standards must continue its transition to a mandatory approach, particularly as electricity markets continue to evolve. However, because the transmission grid is continental in scope, the focus must be on solutions that are continental as well.

CEA, along with other stakeholders, has been pressing for the creation of an Electric Reliability Organization (ERO) that will prepare and enforce reliability standards. That body needs to be continental in design and operation, and CEA is supportive of the North American Electric Reliability Council (NERC) assuming that role with regulatory backstop in Canada and the United States.

Advancing cooperation with our North American partners can also have important environmental benefits, including developing and implementing strategies to address transboundary air issues. Canada could explore a common North American framework on climate change that takes into account regional economic resource and technology realities, including a common emissions trading market with the U.S and Mexico as part of a regional climate change pact. **A common North American framework on climate change could be developed in the context of a multi-pollutant approach that would include transboundary issues, such as NO_x, SO₂ and other smog-causing pollutants.**

In addition to the above, the Canadian electricity sector should continue its coordinated approach to critical infrastructure protection and its close work with Canadian and North American critical infrastructure protection agencies. This includes working with officials from the federal government on the implementation of the security-related provisions of the August 14 Power Outage Taskforce and developing an information sharing framework with industry.

IV. Advancing the Agenda

In order to sustain Canada's competitive electricity advantage into the future, governments and the electricity sector need to collaborate on a sound public policy agenda that will ensure adequate supply, encourage efficient use of our energy resources, and promote environmental sustainability. This will necessarily involve a renewed attention to the issues of investment in the electricity sector. Refurbishing existing infrastructure, building new facilities to meet future demand, supporting technological innovation, a sustained and long-term commitment to energy efficiency and ensuring the viability of a skilled labour force are key issues on which industry and government must collaborate.

Key Recommendations

Establish an Investment Climate to Ensure Future Electricity Supply

- Implementing a comprehensive approach to ensuring a strong, sustainable and secure electricity industry in Canada requires urgent action on the part of governments and industry to foster an environment conducive to greater investment in conventional and emerging generation, transmission and distribution technologies. Given long planning and construction lead times, ensuring an efficient, diverse and reliable power supply for tomorrow depends on investment decisions made today.

- Further action is required to ensure that Capital Cost Allowances (CCA) rates are better aligned to the useful life of assets to support productivity growth. CCA rates must also reflect environmental objectives by better aligning the economic life of assets with environmental performance regulation.
- Investors need to see reasonable rates of return on regulated assets in order to play a role in furthering the development of Canada's electricity infrastructure.
- Incentive tax rates will be helpful in attracting needed investment to support emerging technologies, such as smart meters, clean coal and smart transmission and distribution systems.

Move Government and Industry Towards Smart and Effective Regulation

- Efficient, effective, timely and coordinated approaches to electricity regulation in Canada are needed. In addition, regulatory decisions should provide clear and certain long term direction for proponents. The system should also be accountable, with opportunities for meaningful stakeholder engagement with regulators providing regular business plans with stated performance objectives and targets.
- The federal government should continue to explore means to consolidate and coordinate federal EAs. Greater certainty around the timelines for EA, the scope of information required, and the degree and quality of public engagement will make the process more effective and efficient for both project proponents and regulatory authorities.
- Simplified reporting mechanisms and increased coordination among federal authorities and the provinces are key mechanisms to support improvements in regulatory efficiency.

- The Canadian Environmental Assessment Agency should focus on measuring the success of the current mechanisms in place to achieve the objective of increased EA efficiency.

Work to Ensure a Sustainable Future for the Next Generation

- Government and industry must move more aggressively to promote the development and deployment of energy efficiency and demand side management initiatives, as well as innovative technologies such as clean coal and CO₂ sequestration.
- A substantial effort from industry and government is required toward the establishment of a demonstration project to explore the feasibility of air emissions and CO₂ reduction technologies on a Canadian coal power plant.
- A commitment to go beyond incremental increases in energy efficiency is required. This includes reliable long-term funding commensurate with supply options and alignment of policy and regulatory frameworks.

Foster Innovation and Accelerate Skills Development

- Clean coal technology and carbon capture and storage holds promise of effectively eliminating all emissions from fossil fired production. In addition, aggressive action is required to encourage the adoption of new and emerging technologies, including constantly improving wind power, ever more efficient gas turbines, distributed generation options, automated distribution technologies as well as the application of more energy efficient electricity consuming technologies in industry, business and homes. These and other technologies present a unique opportunity for Canada to support innovation and establish technology leadership.

- Canada needs a distribution utility-supplier-government partnership to accelerate innovation, investment and implementation for electricity distribution infrastructure automation, AMT technology, BPL communications services, distributed resources interconnections, as well as regulatory innovation in support of sustainable development, customer choice and economic opportunities for Canada.
- To support workforce development for the industry and, to ensure an ongoing labour force supply, CEA is collaborating with the Electrofederation, the Canadian Nuclear Association, the Canadian Union of Public Employees, the International Brotherhood of Electrical Workers, the Society of Energy Professionals and other key stakeholders to create an Electricity Human Resources Sector

Council. Continued collaboration with government on this initiative will help ensure access to a skilled labour force.

Build on the Strengths of the Integrated North American System to Maximize Opportunity for Canadians

- Canada must maintain a strong domestic electricity system while strengthening its role within North American institutional arrangements for ensuring system reliability, critical infrastructure protection, and efficient large regional wholesale markets.
- A common North American framework on climate change could be developed in the context of a multi-pollutant approach that would also include transboundary issues, such as NO_x, SO₂ and other smog-causing pollutants.

