

Canadian Electricity and the
economy

The Integrated North American Electricity Market ●

**Enhancing Opportunities for Cross Border
Trading and Environmental Performance**

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Canadian Electricity Association

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Executive Summary

The North American electricity industry – traditionally perceived as a model of stability in both Canada and the United States – is in a state of uncertainty unlike anything it has experienced in its over 100 years of existence. There are three fundamental causes for the current situation: lack of clarity around market rules, environmental challenges, and the very poor investment climate.

This paper takes these three causes for uncertainty as context and justification for its principle thesis. That thesis, stated simply, is that the evolving North American market is increasingly a regionally integrated one, and that continued and growing regional integration will reduce uncertainty. While increased regional integration alone cannot solve all the problems that currently plague the industry, it can contribute to greater efficiency, increased reliability, more predictable regulation and policy, lower costs and greater environmental benefits overall, thereby increasing investor confidence and reducing uncertainty in the marketplace.

In this paper, CEA offers recommendations for measures to help solidify that integration. In particular, CEA calls for the following:

- (1) Increased participation in Regional Transmission Organizations (“RTOs”), and increased focus on harmonizing market rules
- (2) Development of a North American strategy to manage GHG emissions from electricity generation
- (3) Identification of opportunities to further harmonize management of other air emissions
- (4) Creation of a consistent methodology for measuring environmental performance
- (5) Enhancement of cross-border and interprovincial transmission transfer capability
- (6) Coordination of critical infrastructure protection
- (7) Support for a self-governing international organization for developing and enforcing mandatory reliability standards for the evolving electricity industry

CEA believes that enhancing existing cross-border cooperation in the above areas will help deliver continued economic and environmental benefits to the various regional electricity markets in place today, benefiting investors in the industry, the environment, and ultimately consumers across the continent. Maximizing the opportunities offered by our integrated markets must be part of the strategy to help secure a healthy electricity industry for the future.

I. Uncertainty in the Marketplace

The North American electricity industry – traditionally perceived as a model of stability in both Canada and the United States – is in a state of uncertainty unlike anything it has experienced in its over 100 years of existence. There are three fundamental causes for the current situation: lack of clarity around market rules, environmental challenges, and the very poor investment climate.

With respect to lack of clarity around market rules, the model of state-owned or sanctioned integrated monopolies, while still the standard in a number of jurisdictions, is undergoing a change at the hands of state/provincial and federal governments and regulators. New sub-sectors – independent generation, merchant transmission, and power marketing entities – are emerging at a growing rate. This change in the make-up of the industry has required changes in the manner in which regulators treat the industry. In fact, at times, regulators have helped to facilitate the evolution of the marketplace through various measures.

Recent regulatory activity, however, has contributed to uncertainty for the industry. The U.S. Federal Energy Regulatory Commission ("FERC") issued a notice of proposed rulemaking last year to establish standard market design rules; at present, it is unclear when the final rules will be issued. FERC is also taking steps to encourage regional transmission organization ("RTO") development and participation, but the scale and scope of such RTOs remains undetermined. The transition to competitive markets has been uneven with higher cost jurisdictions moving earlier and further. And while competition at the wholesale level has been most widely embraced, several provincial and state decision-makers have expressed concern regarding the implementation of competition in retail electricity markets. In fact, a few have taken steps to either slow or stop the movement to competitive markets in their respective jurisdictions.

At the same time, electric utilities are feeling the pressure of environmental challenges unlike anything to date. In Canada, this is especially the case as a result of Canada's ratification of the Kyoto Protocol. That decision leaves Canada obliged to reduce greenhouse gas ("GHG") emissions by six percent from 1990 levels for the period 2008-2012; the Canadian electricity industry will face an onerous task to help meet that goal. In the United States, while the Bush Administration has chosen to pursue a voluntary approach that focuses on improving the carbon intensity of industrial processes, rather than Kyoto, several U.S. States have enacted legislation to control GHG emissions. Above and beyond GHG emissions, companies on both sides of the border anticipate increased reduction requirements for other air emissions, including nitrous oxides (NO_x), sulphur oxides (SO_x), mercury, and particulate matter.

Apart from air emissions, pressures to "green" generation portfolios are increasingly evident through proposals for renewable portfolio standards and restrictions on the building of new conventional generation projects. Moreover, and not to be underestimated, obligations with respect to the protection of species and habitat – fish, birds, and other wildlife – are more and more onerous.

Lack of clarity around market rules and environmental concerns are compounding the third cause for market uncertainty: a very poor investment climate. Investors have been wary of investing in an industry affected by the Enron debacle, the Telecom market deflation, and the continued fallout from September 11th. This lack of investor confidence is a serious challenge to the construction of needed generation and transmission projects and could affect meeting the future needs of customers.

These regulatory, environmental and investment issues are all cause for concern. They are also evident across the North American marketplace. Equally evident across the market is an emerging opportunity that, CEA is convinced, can make a material contribution to moving past such environ-



mental and investment concerns: the potential for efficiency gains from well functioning regional markets. The North American electricity market is increasingly characterized by regionally integrated sub-markets, and continued growth in scale and scope of regional integration is part and parcel of a strategy to move towards greater efficiency. Enhancing existing cross-border cooperation will help deliver continued economic and environmental benefits to the various regional electricity markets in place today, benefiting investors in the industry, the environment, and ultimately consumers across the continent.

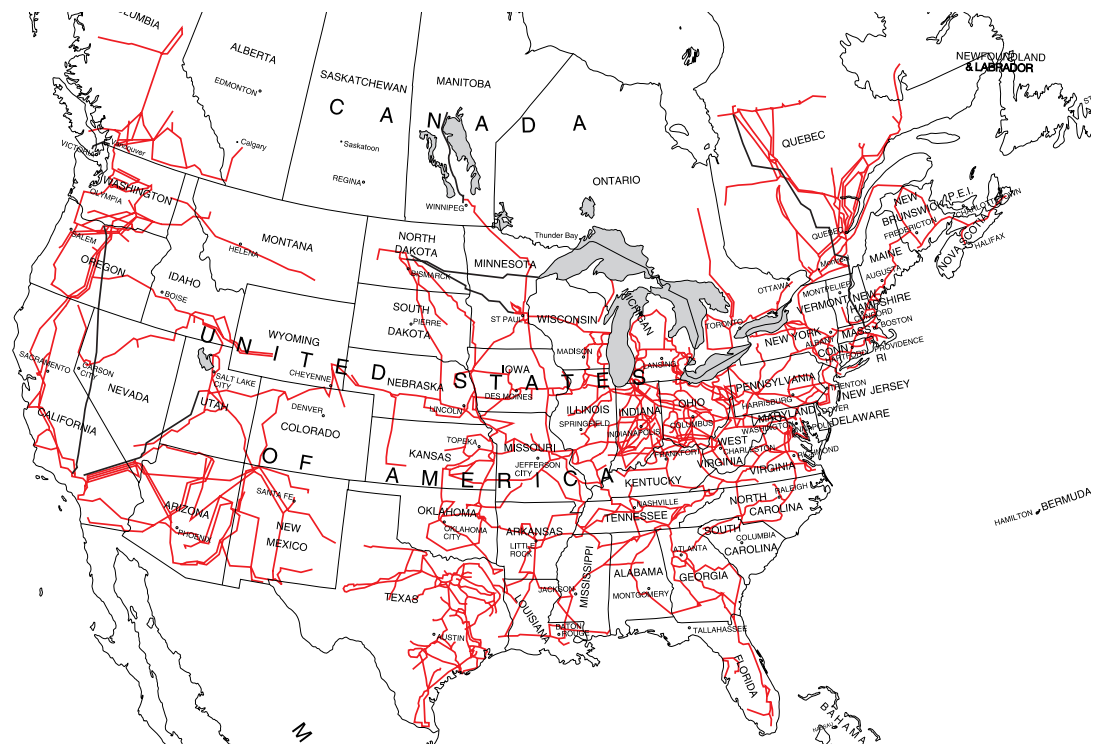
II. The Integrated U.S./Canadian Electricity Market

A remarkable bi-lateral trading system has evolved between Canada and the United States over the last half century. What began with small tie-lines and the develop-

ment of boundary waters for hydroelectricity, has evolved into extensive cooperative arrangements for managing transmission system reliability, major inter-ties across the Canada-U.S. border coast-to-coast, and growing exports and imports.

The diversity of our systems – the different balances of the various conventional and emerging technologies in our regional generation mixes and the differing market demands region by region over days, weeks, and seasons – has prompted a level of trade that benefits electricity consumers across the continent. When linked across the national border, our diverse systems have created opportunities for efficiencies in regional systems management, reduced environmental impact, and improved reliability; these are vital achievements for all involved.

North American Transmission Grid



Map copyright CEA. Lines shown are 345kV and above. There are numerous interconnections between Canada and the U.S. under 345kV that do not appear on this map.

A. Details of the Integrated Market

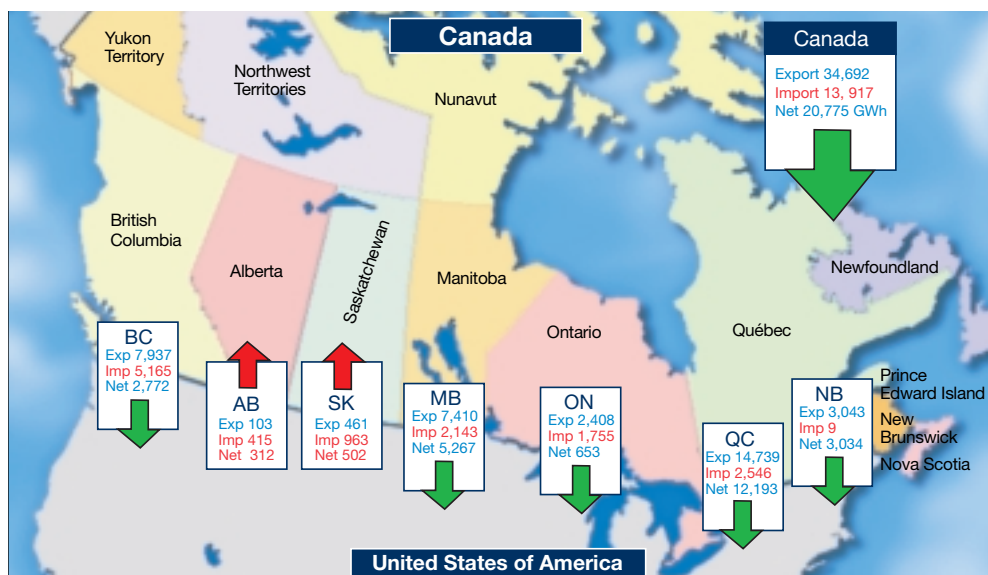
The map of the North American Transmission Grid on page 3, offers a clear visual indicator of the extent of current integration. Electricity trade occurs at a range of points across the Canada-U.S. border, as shown below, reflecting the largely north-south nature of the Canadian grid, as it is integrated with the more complicated web of transmission infrastructure in the United States.

Cross-border trade enables market participants to take advantage of diversity between the Canadian and U.S. electricity systems. The diversity and complementarity of our systems is first demonstrated by the different balances of various con-

ventional and emerging technologies in our generation mixes. These differences primarily reflect availability of resources, as different geographic regions have access to different fuels. The pie charts on page 5 show the generation mixes for Canada and the U.S.

Electricity is now a key and growing part of the larger energy trade picture between the two countries, and it is increasingly two-way. Electricity trade between Canada and the United States stems primarily from two sources. First, generators in Canada are key suppliers to particular U.S. markets. In addition, generators in both countries take advantage of the trading relationship to optimize the performance of their respective asset portfolios, which contributes to

Exports and Imports Between Canada and the United States, 2002



Source: Electricity Exports and Imports, January 2002 to December 2002, National energy Board.

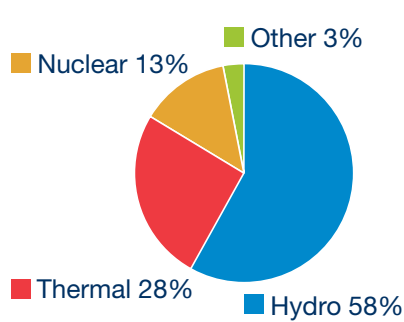
lower electricity costs and higher overall system efficiency and reliability. The bar graph on page 5 demonstrates the extent of this two-way trading relationship.

The quantity of electricity exported from Canada has typically been 7-9 percent of production. Electricity export shares

have varied substantially by province, from as low as 1-2 percent to as high as 30 percent. Overall, Canadian exports have remained relatively stable over the past four to five years. However, electricity imports to Canada have increased significantly over the last several years. The result has been a continuously growing trade and invest-

Electricity Generation by Fuel Type in Canada and the United States, 2001

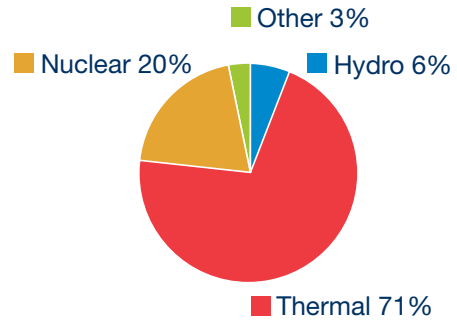
Canada
Net Electricity Generation, 2001



Total = 565 TWh

Source: Statistics Canada

United States
Net Electricity Generation, 2001



Total = 3720 TWh

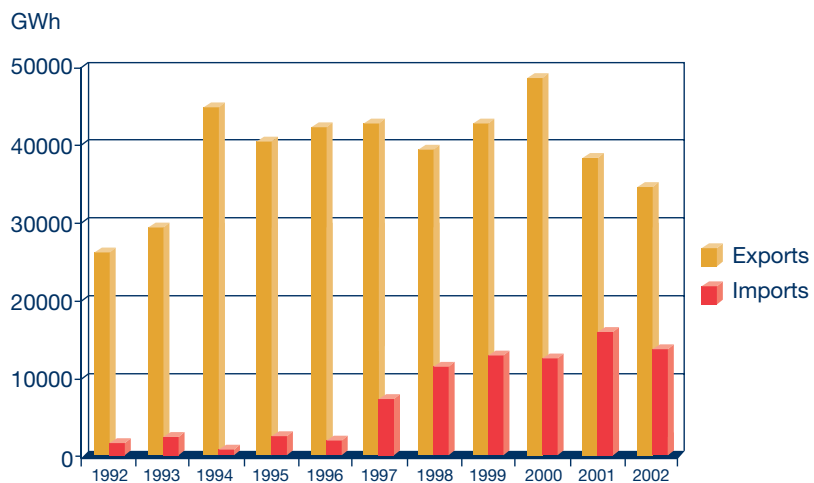
Source: Energy Information Administration.
U.S. Department of Energy

ment relationship in power coast to coast, to the advantage of consumers across the continent.

Robust competitive wholesale markets in both the United States and Canada rely on integrated U.S./Canadian markets. As markets continue to open, the importance of cross-border trade will only increase.

Restructuring of the electricity industry remains an ongoing process in both Canada and the United States. As with states in the U.S., some provinces in Canada are pursuing a restructuring agenda at a different pace compared to others. At present, approximately 50 percent of Canadian retail customers are in completely open markets (although the Ontario govern-

Electricity Exports from Canada and Imports from the U.S., 1992-2002



Source: Electricity Exports and Imports, Monthly Statistics, National Energy Board, various years.

ment has capped retail electricity prices to low volume customers until 2006). The map below provides the status of market restructuring in Canada.

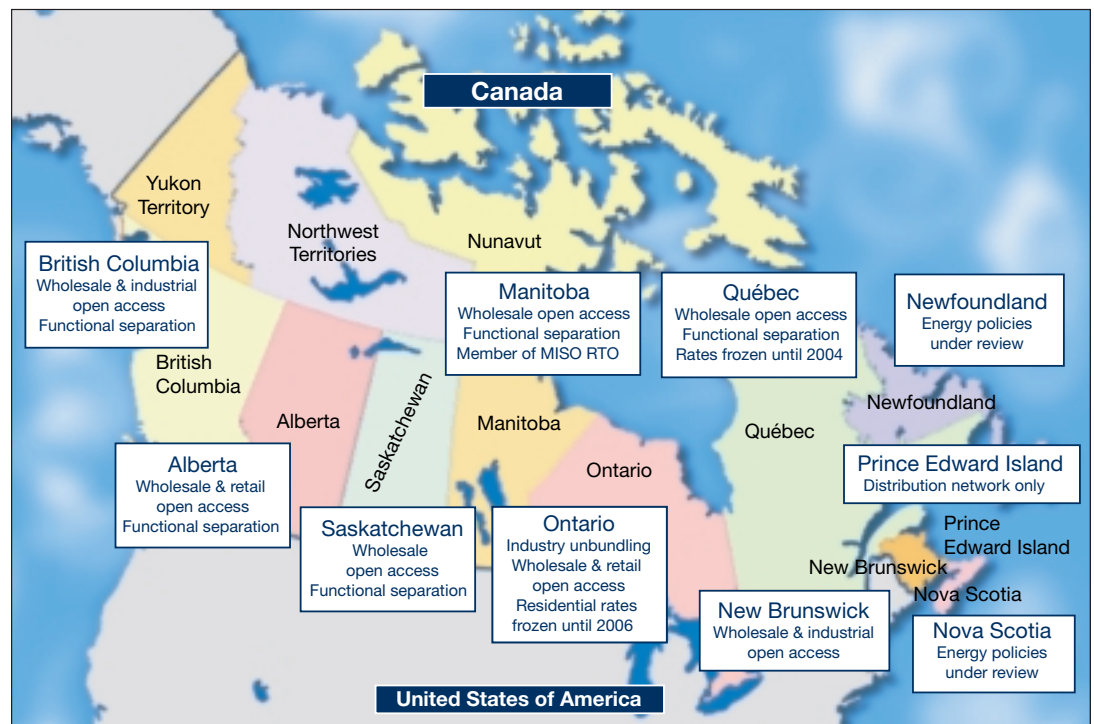
B. The Economic and Environmental Benefits of an Integrated Market

Cross-border electricity trade provides the opportunity to optimize the use of generating resources to the benefit of U.S. and Canadian market participants. For example, when linked across borders, the diversity of our systems, our climates, and our demand profiles allow for efficient power flows north or south at various times depending on market circumstances. The resulting regional market efficiency gain reduces the need for generating facilities and results in lower overall generation costs to consumers. Moreover, electricity companies can derive environmental benefits through such efficiencies – for instance, coordinating on 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 change, thereby avoiding both emissions and higher costs from fossil peaking units. Such opportunities exist in each of the regional markets across the continent – western, central, and eastern.

Efficiencies in regional systems management can also be achieved through participation in or coordination with regional transmission organizations ("RTOs"). RTOs present an opportunity for the effective utilization of existing transmission infrastructure. Canadian utilities are actively exploring participation in RTOs as an approach for optimizing the management of their respective transmission systems.

Status of Market Restructuring in Canada, 2003



Imports and exports balance system usage and provide reliability at the various transfer points along the U.S./Canada border. Canadian electricity plays an important role in serving peak demand in a number of U.S. regional markets along the border, and even helps to secure reliable service as far south as southern California. In addition to this short-term reliability assistance, two-way trade can help to secure adequate electricity supply in the United States in the future. Increases in transmission capacity across the border are essential for an increase in electricity flow between markets in the United States and Canada. Provided that the barriers and disincentives to transmission investment are removed, and the transmission grid is operated in a manner that accommodates international exchanges, reliability in electricity supply will increase as a result of this integration of markets.

Moreover, the integration of U.S./Canadian electricity markets will allow for the coordination of approaches to more effectively achieve reductions in the environmental impact of electricity facilities. No one technology is universally applicable across a national marketplace – fuel availability, geography, and a host of other factors help determine the generation mix. The objectives of reliable, affordable, environmentally preferable power require that all technologies be available. In fact, increased integration enables the larger, combined U.S. and Canadian regional electricity markets to take full advantage of various emerging technologies – like wind power, whose intermittent nature requires backup capacity, to meet our future energy needs on a larger scale.

Finally, the integrated market enables Canadian and U.S. participants to effectively work together to safeguard the North American electric grid against physical and cyber threats. By working through the North American Electric Reliability Council, Canadian and U.S. utilities and other market participants are able to coordinate responsibilities to ensure effective critical infrastructure protection of the electric power sector.

III. Measures to Enhance Cross Border Trading and Environmental Performance

Promoting opportunities to enhance both cross-border trade and environmental performance is something to which CEA is committed. Part of that commitment involves our identifying the issues of common concern north and south of the border, and working to address those issues in as efficient and effective a manner as possible. In the following sections of this paper, we identify what we believe to be the key issues facing the industry and provide suggestions for enhancing cross-border trade and providing for a cleaner and more secure electricity future for both the United States and Canada.

A. Increased Participation in Regional Transmission Organizations (“RTOs”) and Increased Focus on Harmonizing Market Rules

Over the past number of years, the Federal Energy Regulatory Commission (“FERC”) has taken a number of steps to establish and enhance competition in wholesale electricity markets. Beginning with the open-access requirements in Order No. 888, FERC has issued several key orders to encourage the development of competitive markets. FERC’s recent actions to promote RTO development and establish standard market design (“SMD”) rules represent important steps in the establishment of seamless and effective wholesale markets.

The establishment of region-wide RTOs will promote trade in electricity through enhanced market opportunities and greater system efficiencies. Moreover, standardizing market rules will eliminate undue discrimination, rate pancaking, and transmission constraints. Enhancing efficiency in wholesale electricity markets through these regulatory measures will benefit both Canada and the U.S.

Cross-border trade between the United States and Canada is governed by the rules implementing the energy chapter of the North American Free Trade Agreement (“NAFTA”). NAFTA articulates the principle

of "national treatment" as underscoring the trading relationship between the NAFTA partners.

Over the years, Canadian entities and their U.S. counterparts have pursued this goal of cross-border trade through the creation of agreements between various Canadian entities and entities in neighbouring U.S. jurisdictions. In recognition of the varying operational system characteristics of the provinces, there is significant variation in the nature and form of such arrangements from province to province. What is important is that Canadian and U.S. entities have mutually crafted, and will continue to craft, arrangements that will facilitate such trading relationships, while respecting NAFTA rules and jurisdictional sovereignty. Accordingly, any U.S. actions with respect to SMD and RTO formation should be informed by an understanding that each Canadian province and its entities will approach and evaluate the rule's implications in the context of unique and sovereign provincial legislative and regulatory realities. Because Canadian entities are not subject to domestic market rules in the U.S., these rules need to apply in a manner that permits the continued healthy functioning of the cross-border markets in which Canadian and U.S. entities participate.

While the Canadian Electricity Association stresses the importance of regulatory flexibility with respect to Canadian utilities, CEA nevertheless recognizes the great value of RTO participation and standard market rules for enhancing cross-border trade. One Canadian utility is an active participant in an RTO, while a number of other Canadian utilities are exploring participation in other RTOs. Moreover, a number of CEA members are currently working within their respective provinces and with their respective trading partners to establish processes that will enhance cross-border trade, and CEA members commit to such continued cooperation to improve liquidity within bi-national markets.

B. Develop a North American Strategy to Manage GHGs

In order to meet its GHG reduction obligations under the Kyoto Protocol, CEA has proposed the Emissions Performance Equivalent Standard ("EPES"). EPES is a voluntary industry commitment to reduce GHG through limits on the emissions per unit of production on a net basis (i.e. achieved physically or through offsets). In exchange, the industry is seeking a commitment by the government to provide investor certainty for the duration of the industry's commitment. The performance standard rate will be agreed by the power industry and government and is targeted at the emissions rate of a combined cycle gas turbine or better. This proposal will limit the growth of electricity sector GHG emission rates and help set a trend for reduction.

While Canada has ratified the Kyoto Protocol, the United States has not. Nevertheless, there are opportunities for developing an approach to climate change between the NAFTA partners. Crafting an approach to climate change that is North American-focused allows for the development of an approach that recognizes the unique characteristics of North American energy production. And EPES could provide a solid basis for a North American approach to climate change because:

- It is grounded in the recognition that capital stock must be permitted to live out its useful life if the costs of GHG limitation are to be minimized.
- It allows for the time needed to develop and demonstrate new technology.
- It creates a stable framework within which investment in other emission reducing technologies can be undertaken.
- It applies an easily recognizable and measurable performance standard, thereby simplifying the determination of what constitutes incremental improvement and focusing effort on improvement

without penalizing economic success.

- It addresses the question of burden sharing, thereby squarely facing the problem of regional and sectoral equity whose resolution will be essential to successful GHG limitation in Canada.

In addition to developing a common approach to emissions reductions, the NAFTA partners could work together on a coordinated approach to emissions trading. By providing businesses with the flexibility that trading provides, the NAFTA partners will help companies identify the most cost-effective options to reduce emissions.

Effective emissions trading requires accurate reporting both of GHG emissions and emissions reductions, but also requires that such reporting be based on accepted business practices. As yet, there are no generally accepted accounting and reporting practices for GHG emissions. Because there are no accepted practices, questions could arise as to the validity of certain emission reduction credits. A North American GHG registry would encourage substantial reductions in GHG emissions in North America. First, established protocols both for reporting emissions and for reporting emissions reduction would encourage businesses in all of North America to engage in the trading of emissions reduction credits. Second, the existence of established protocols would encourage additional investments in GHG reduction measures. Finally, eligibility for a much broader range of projects for credits will encourage more businesses to participate in the registry. As with the great success with energy trading, GHG trading between Canada and the United States offers significant benefits to both countries – building on already strong regional markets through new trading opportunities.

C. Explore Opportunities for Coordinating Approaches to NO_x, SO_x, Mercury and Particulate Matter

The electricity industry in both Canada and the U.S. is facing increasing pressure

to reduce air emissions from fossil-fuel generating facilities. The major air pollutants generated from the combustion of fossil-fuels are nitrogen oxides (NO_x), sulphur oxides (SO_x), mercury, and particulate matter. NO_x contributes to ground-level ozone, while both NO_x and SO_x are causes of acid rain. Particulate matter has been linked to lung damage. And fish contaminated with mercury deposited in lakes and streams has proven toxic for those consuming the fish. There already exist significant regulatory and policy measures to address these issues on both sides of the border, and the requirements for emission reductions are expected to increase over time. However, uncertainty regarding how and when these additional requirements will take effect greatly impedes the industry's ability to plan for and execute efficient, cost-effective long-term solutions.

The electricity industry recognizes the merits of addressing the various air emission issues in an integrated fashion to achieve efficient solutions. The U.S. Congress is currently considering bills to require increased emissions reductions on a multi-pollutant basis. The Bush Administration, through its Clear Skies Initiative, is also proposing a multi-pollutant approach to air emissions reductions. The industry, however, also recognizes that these pollutants are regional in their impacts, and that these regions do not end at the U.S./Canadian border. In fact, regional air quality issues related to these emissions can be particularly acute along some of the heavily populated Canada/U.S. border regions. Moreover, while SO₂ emissions over the past decade have declined in both the U.S. and Canada, NO_x emissions along the U.S./Canadian border are projected to increase because of anticipated higher demand for electricity, the use of older generation facilities, and the growth in motor vehicle use. Accordingly, while a multi-pollutant approach for controlling these air emissions is important, it is equally important to find solutions that reflect the regional realities along the Canada/U.S. border.



Given the cross-border impacts of NO_x, SO_x, mercury and particulate matter, the management of these air emissions would benefit from coordinated approaches. Although requirements under international agreements such as the Canada/U.S. Clean Air Agreement attempt to address some of these issues, efforts in this area could be enhanced with other tools such as emission trading. Moreover, focusing on approaches that reflect the regional nature of the air-shed should result in optimal solutions to the air pollution problems. For example, exploring opportunities for harmonizing long-term targets of key emissions on both sides of the border will facilitate effective reductions and promote a sustainable electricity sector and enhanced trade between the United States and Canada. There is a need for more dialogue between officials on either side of the border, with industry participants in the discussions, so as to facilitate the most cost-effective and practical solutions to an issue of concern to all.

D. Establish a North American Approach for Measuring Environmental Performance for Electricity Systems

The electricity industry recognizes the value of more efficient and environmentally friendly production processes and technologies. New developments that address both supply and demand and the environmental issues attached to both are of growing interest to electricity companies and governments across the continent. While new technologies will not be sufficient to meet our new supply requirements, they are part of a larger strategy to solve long-term supply issues, as well as address environmental concerns. The promotion of sustainable power production by existing and new technologies will help to secure our energy future.

Promotion of such developments should have two goals: (1) to increase energy and economic security and (2) to reduce the environmental impacts resulting from the existing generation portfolio – from emissions, waste, and habitat infringements.

Accordingly, the programmes chosen to promote such development should be able to demonstrate that the changes support such goals. One way to ensure that a government supported programme yields environmentally supportable results is to rely on an approach that yields the most environmentally preferable power options.

An approach that is scientifically-based and relies on comprehensive, transparent and verifiable assessments will shift the focus away from arbitrary decision-making. Such an approach would measure facilities against a baseline, providing a tool to benchmark a utility or a region's actual environmental performance, rather than a mechanism that pits different technologies against one another. A scientifically-based, technology-neutral approach would yield the appropriate environmentally preferable option.

Such an approach could also apply on a regional basis, thereby reflecting geographic differences and the availability of fuels. The flexibility of this approach enables the analysis to focus on the appropriate solutions for a particular region. The value of this approach as a tool is its ability to accurately measure regional differences in determining environmentally preferable generation solutions for the particular region.

A number of programmes (established either by regulators or the industry) have evolved for the certification of renewable and energy efficient technologies for participation in a particular program. These vary in terms of renewable technology participation, thereby making it difficult to establish uniform criteria for certification. However, these programs often possess a more fundamental flaw – they rely on criteria that arbitrarily pick winners and losers. Because an environmentally preferable power approach relies on uniform and technology-neutral criteria, it can easily serve as the basis for a uniform and technology-neutral environmental certification program, with ready application



across North America as a whole.

E. Encourage Cooperation for the Construction of Cross-Border Transmission Transfer Capability

While the integrated U.S./Canadian electricity market enjoys the benefits of cross-border trade, constraints along the border and within large regional markets continue to inhibit further trading. Several examples exist of supply potentially available to constrained regions that cannot move because of transmission congestion. For example, the lack of direct inter-ties between Alberta and the United States limits the opportunities for cross-border trade between these jurisdictions. Constraints within the Northwest and Northeast regions constrain economic flows beyond the border. Enhanced transmission capacity between Manitoba and its bordering states will allow for increased exports from Manitoba.

The evolving RTOs are assuming regional transmission planning responsibilities. Given the reality of international regional markets and the interconnected nature of the North American transmission system, an RTO that includes transmission facilities that connect with or cross the U.S./Canadian border will be able to both identify constraints along the border and identify the necessary transmission facilities to address such constraints. CEA believes that such RTOs can achieve effective regional and cross-border planning only by ensuring effective participation by Canadian entities and provincial authorities in the planning process.

Opportunities to ease transmission congestion need to be identified and actions taken to ensure adequate returns and reduce siting delays. One approach for encouraging the construction of transmission facilities across the border, as well as within states and provinces, is streamlining the process for siting transmission lines. Extensive, and at times duplicative, regulatory requirements often result in substantial delays in the siting of transmission lines. And still greater requirements are imposed for proposed facilities that would cross the

U.S./Canadian border. Streamlining these processes would allow for increased construction of necessary transmission facilities within the North American transmission system.

Rates of return on capital invested in transmission facilities are too low, and serve to discourage investment in such facilities. Instead, capital is invested in facilities that offer higher returns, such as generation facilities. Increasing such rates of return for transmission facilities would encourage greater investment in such facilities.

Finally, tax measures that would facilitate more investment in the development of new transmission infrastructure at key bottlenecks across the continental marketplace could be implemented. For example, improved capital cost allowance rates or depreciation rates would encourage greater transmission investment.

F. Coordinate Approaches Regarding Critical Infrastructure Protection

Since the terrorist attacks in the United States on September 11th, 2001, the electricity industry is better prepared for both physical and cyber attacks on the electricity infrastructure. However, the frequency of cyber attacks is on the increase. Such an increase is particularly troubling given the electricity industry's growing dependence on e-commerce and electronic controls. Moreover, the potential for physical threats to the electric infrastructure remains a reality.

In January 2000, following the successful Y2K transition, CEA members formed the Critical Infrastructure Protection Working Group in order to coordinate activities, share best practices, and interface with the federal government. In its first year-and-a-half of activities it had established an effective information sharing Intranet site, implemented methods for coordinating activities with the North American Electric Reliability Council ("NERC") and other partners, developed and implemented an Early Warning System for threats to electricity infrastructure, and worked closely

with the federal government. The Early Warning System developed by the Working Group is a model being looked at by other sectors as a fast and efficient method of communicating information in times of high alert.

The North American electric power industry is currently working through NERC to develop approaches for safeguarding the North American bulk electric power system. Such bi-national cooperation provides for an effective and cost-efficient approach to ensuring the protection of the North American electricity infrastructure. A North American approach to critical infrastructure protection serves as an effective model for protecting the electricity industry's critical assets, and accordingly should be encouraged.

G. Support a Self-Governing International Reliability Organization for Developing and Enforcing Standards

Reliability standards on the North American transmission system are, for the most part, still voluntary (although some regions have created mandatory obligations through contractual provisions). While such voluntary standards worked well when the industry players were more regulated, industry restructuring and wholesale electricity competition in the last number of years have spawned many new market participants, prompting concerns that voluntary compliance with operating and planning rules could be compromised. Accordingly, mandatory reliability standards are required to ensure a reliable transmission grid. And because the transmission grid requires uniformity in such mandatory standards, the reliability standards must be developed to accommodate the needs of market participants and regulators on both sides of the border.

In response to such concerns, language has been developed in the U.S. Congress for the establishment of an electric reliability organization ("ERO") for the development of mandatory standards. It is expected that NERC will be designated as the ERO. The

ERO would develop reliability standards for use across the continental transmission grid. The ERO would serve to balance the needs of all market participants utilizing the international transmission grid.

The regulator as rule-setter can be replaced by a more open dialogue under the ERO approach, where stakeholders draw on their own technical expertise to set the rules. Moreover, and most importantly from the perspective of Canadian participants, the ERO model can operate effectively on an international basis. The language calls for the creation of an independent body – protecting it from undue control by any particular interest, government or other – with regulatory oversight in the U.S. by FERC. And the regulatory authority under the reliability language only extends to either approving the reliability standards or remanding those standards back to the ERO; the regulator has no authority to change the reliability standards or develop new standards.

The transmission system in North America is an integrated one. That integration between Canada and the United States will only increase as energy demand and trade continue to grow. This makes close cooperation between our two countries a necessity. At the same time, the market, regulatory, and administrative systems are different in each country. These regional differences will necessitate flexibility in any regime for the common administration of transmission, in order to ensure regional solutions. Accordingly, NERC operating as the ERO with the authority to develop, implement, and enforce reliability standards, becomes essential.

In addition to the development of mandatory reliability standards, the development of uniform business practices is also important to the establishment of effective electricity markets. And recently, the responsibilities for developing both reliability standards and business practice standards have become clearer. While an ERO should be responsible for developing reliability standards, the North American

Energy Standards Board ("NAESB"), through its recently established Wholesale Electricity Quadrant, should develop business practice standards. NERC and NAESB should then coordinate their efforts, given the interrelated nature of reliability and business practice standards. The design of the ERO and NAESB as international bodies, as well as the ability of Canadian entities to have an effective voice in standards development, will result in a strong partnership in standards development between U.S. and Canadian entities.

Conclusion

The North American electricity industry, faced with a changing industry and evolving market rules, important environmental challenges, and a distressed investment climate, is experiencing a crisis of confidence. Nevertheless, the North American electricity system is among the most reliable in the world and electricity consumers generally have access to energy at reasonable prices. The integration of the North American electricity market offers both U.S. and Canadian market participants opportunities to enhance cross-border trade, increase system and market

efficiencies, and improve environmental performance. By enhancing this integrated market, participants will help to lessen the uncertainty in the present market and secure a healthy future for the North American electricity industry.

If success is to be realized and the electricity industry is to play its full and vital role in powering the North American economy in the 21st century, the following must occur: (1) policy makers must embrace the vision of large, non-discriminatory, bi-national regional markets; (2) regulators must coordinate and collaborate in setting clear and certain rules respectful of and accommodating jurisdictional realities; and (3) investors must see reasonable rates of return. Regionally integrated markets are a reality in the Canada-U.S. electricity relationship. Recognizing these natural markets, and identifying opportunities to build on them, offers significant promise for future growth, for improved environmental performance, and for the continuing reliable supply of electricity to consumers across North America.