Canadian Electricity Association | Association canadienne de l'électricité

STATEMENT FOR THE RECORD OF
THE CANADIAN ELECTRICITY ASSOCIATION
BEFORE THE U.S. HOUSE COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON ENERGY AND POWER
HEARING ON "QUADRENNIAL ENERGY REVIEW AND RELATED DISCUSSION DRAFTS"

June 2, 2015

The Canadian Electricity Association ("CEA") is pleased to provide this statement for the record, which focuses on several issues set to be examined by the Subcommittee on Energy and Power during today's hearing.

In this statement, CEA applauds key principles and provisions reflected in the "Architecture of Abundance" discussion draft on Energy Diplomacy; recommends one minor modification to that language; and offers feedback on the chapter in the U.S. Department of Energy's ("DOE") Quadrennial Energy Review ("QER") which looks at the integration of energy markets and infrastructure in North America.

I. Description of CEA

CEA is the authoritative voice of the Canadian electricity industry, promoting electricity as a key social, economic and environmental enabler that is essential to North American prosperity. CEA members generate, transmit, distribute and market electric energy to industrial, commercial and residential customers across Canada and into the U.S. every day. Our membership includes provincially-owned and investor-owned utilities, many of which are vertically-integrated; independent power producers (several of which also own assets in the U.S.); municipally-owned local distribution companies; independent system operators; and wholesale power marketers.

II. Background – The U.S.-Canada Electricity Relationship

Electricity plays an integral role in the vibrant bilateral energy relationship. There are over 35 electric transmission interconnections between the U.S. and Canadian power systems, which together form a highly integrated North American grid (see Appendix 1).

These linkages between the U.S. and Canadian grids have enabled steady growth in a continent-wide electricity marketplace. Bilateral trade occurs routinely – and has occurred for decades – at a range of points across and beyond the border, with supply fulfilling demand in the most efficient, cost-effective manner possible (see Appendix 2). In 2014, the value of cross-border sales exceeded US$3 billion, while the total volume represented further growth in the recent

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upward trend in bilateral trade. Such trade enables market participants to take advantage of supply diversity across the wider grid, reflected in the very different generation mixes in place in either country (see Appendix 3). In a very real sense, the North American electricity market is borderless.

Moreover, electric integration between Canada and the U.S. is set to continue expanding. Table 1 below provides a summary of the multitude of cross-border transmission projects currently under various stages of development.

Table 1 – Current U.S.-Canada International Power Line Projects

Name	Sponsor	State-Province	Length (miles)	Voltage & Capacity	Purpose	In-service Date	U.S. Presidential Permit Status
Champlain Hudson Power Express	Transmission Developers Inc.	New York-Québec (QC)	333	1,000 MW, HVDC (underwater, underground, merchant)	Deliver hydro and wind energy from QC to New York City area	Fall 2017 (expected)	Issued October 2014
Great Northern Transmission Line	Minnesota Power (MP)	Minnesota-Manitoba (MB)	220	500 kV, 750 MW, AC	Part of MP-MB Hydro PPA; supports building wind in North Dakota	June 2020 (expected)	Application filed April 2014
Lake Erie Connector	ITC	Pennsylvania-Ontario (ON)	73	1,000 MW, HVDC (underwater, merchant)	Enable bidirectional flow of energy and capacity; enhance security and reliability	2019 (expected)	Application filed May 2015
New England Clean Power Link	TDI-New England	Vermont (VT)-QC	154	1,000 MW, HVDC (underwater, underground, merchant)	Deliver renewable energy from QC into VT and New England	2019 (expected)	Application filed May 2014
Northern Pass	Northern Pass Transmission LLC	New Hampshire (NH)-QC	187	1,200 MW, HVDC line with 345 kV AC spur	Deliver QC hydro into NH and New England	2017 (expected)	Application filed October 2010; re-filed with new route July 2013
Soule River Hydroelectric Project	Soule Hydro, LLC	Alaska (AK)-British Columbia (BC)	10	138 kV, HVAC (underwater)	Support 77 MW hydro project in AK (sales to BC or Pacific NW)	TBD	Application filed March 2013

Sources: http://energy.gov/oe/services/electricity-policy-coordination-and-implementation/international-electricity-regulatio-2; http://www.itclakeerieconnector.com/.

These projects attest to the enduring appeal of cross-border infrastructure as an advantageous option for pursuing benefits which are specific to the economic needs, reliability demands and public policy interests of the local jurisdictions involved.

What's more, each of these pending cross-border transmission projects will support the development of clean, low- and non-emitting energy resources, including resources located in the U.S. Greater integration across the grid will therefore help ensure that North America's clean energy potential is maximized, rather than left stranded.

The benefits associated with interconnection of the two countries' power systems are numerous:

1. *U.S.-Canada electric integration helps reduce U.S. greenhouse gas ("GHG") emissions.*

    - In April 2015, the Center for Climate and Energy Solutions ("C2ES") released a policy paper examining the role imports of Canadian hydroelectricity can play under the U.S. Environmental Protection Agency's Clean Power Plan.[1] Overall, C2ES found that hydropower imports could have a significant, positive impact on GHG emission rates for importing U.S. states, and that there should be ample opportunities for states to craft innovative policies to take advantage of Canadian hydropower in a manner that achieves real emission reductions.
    - From 2006-2012, exports of hydropower from Manitoba to utilities in the U.S. helped to achieve reductions in GHG emissions in the U.S. Midwest in the range of 44 million to 60 million metric tons.[2]
    - The New England States Committee on Electricity ("NESCOE") released an analysis in November 2013 of the economic and environmental impacts associated with hypothetical incremental levels of hydroelectric imports from Québec and Newfoundland and Labrador.[3] Under different scenarios of increased imports during a 2014-2029 study period, the analysis concluded that average annual electric sector GHG emission reductions in New England would range from 1.3 million to 8.0 million metric tons, with cumulative reductions ranging from approximately 58 million to 97 million metric tons.

2. *U.S.-Canada electric integration enhances reliability of supply for U.S. consumers.*

    - Canada typically exports between 5-10% of its total electric generation to the U.S. on an annual basis. These sales are critical to the supply mix in many areas in close proximity to the border. For example, in 2010 exports from Canada represented the following percentages of total retail sales in these jurisdictions:

[1] http://www.c2es.org/newsroom/releases/canadian-hydropower-help-states-achieve-carbon-cutting-goals.
[2] Based on revenue quality metered data and eGRID 9th edition Version 1.0 Year 2010 GHG Annual Output Emission Rates for MRO West.
[3] Black & Veatch report prepared for the New England States Committee on Electricity. "Hydro Imports Analysis." (November 1, 2013), p. 1-1. http://www.nescoe.com/uploads/Hydro_Imports_Analysis_Report_01_Nov__2013_Final.pdf.

Vermont, 38%; Maine, 18%; Minnesota and North Dakota (combined), 12%; New England (all states), 10%; New York, 6%; and Michigan, 6%.[4]

- Canada-U.S. trade can serve to increase the diversity of supply options available in certain regions confronting unique challenges. For example, the U.S. Energy Information Administration ("EIA") reported in August 2014 that New England may continue to rely on an increasing amount of imported hydropower from Canada in order to manage the impending retirement of a significant amount of fossil and nuclear capacity.[5]
- Integration assists in managing conditions of oversupply and loss of supply. For example, among the solutions incorporated into the Bonneville Power Administration's updated process to manage oversupply conditions is additional storage of water in Canadian dams, beyond amounts required under international treaty.[6] With respect to loss of supply, the importation of electricity from neighboring Canadian jurisdictions was critical to the reliability of power supplies for several U.S. states and regions during the severe "polar vortex" events experienced in the winter of 2013-2014.[7]

3. *U.S.-Canada electric integration enhances affordability of supply for U.S. consumers.*

- In recent assessments of the competitive performance of ISO-NE electricity markets, the External Market Monitor concluded that the importation of electricity from Québec and New Brunswick "reduces wholesale power costs for electricity consumers in New England."[8]
- The Market Monitoring Unit ("MMU") for NYISO has consistently observed a correlation between availability of electricity imports from adjacent Canadian jurisdictions and reduced market prices. For example, after a 20% increase in NYISO market prices from 2009-2010, the MMU identified a diminshed level of imports from Québec as a key factor contributing to increased energy prices.[9]

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[4] National Energy Board, Electricity Exports and Imports (2010) and U.S. Energy Information Administration, U.S. States, State Profiles and Energy Estimates, Exports and Imports (2010). See Appendix 3 for presentation of this data in table form.

[5] http://www.eia.gov/todayinenergy/detail.cfm?id=17671.

[6] http://www.bpa.gov/news/newsroom/Pages/BPA-revises-policy-for-managing-seasonal-power-oversupply.aspx.

[7] U.S. Federal Energy Regulatory Commission. Technical Conference on Winter 2013-2014 Operations and Market Performance in RTOs and ISOs. (April 1, 2014). Docket No. AD14-8-000. Transcript available: http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20140408-4002.

[8] http://iso-ne.com/static-assets/documents/markets/mktmonmit/rpts/ind_mkt_advsr/isone_2013_emm_report_final_6_25_2014.pdf, p. 117.

[9] Potomac Economics. "2010 State of the Market Report for the New York ISO Markets." (July 2011). http://www.potomaceconomics.com/uploads/nyiso_reports/NYISO_2010_Final.pdf, p. iii.

- In late 2013, MISO released a study examining whether the costs associated with enhanced transmission capacity between Manitoba and MISO would enable greater penetration of wind resources across the organized market. The study concluded that significant benefits would be derived from adding new capacity, including weighted average load cost savings of US$430 million annually through 2027.[10]

4. *U.S.-Canada electric integration helps enable development of clean energy in the U.S.*

- A recent power purchase agreement ("PPA") between Manitoba Hydro and Minnesota Power includes a "wind storage" provision, entitling Minnesota Power to deliver generation from its North Dakota wind farms into Manitoba, where the energy can be absorbed into the province's hydroelectric system.[11] In multiple public forums, Minnesota Power has repeatedly underscored how this agreement is vital to its plans to maximize the operational efficiency of its existing wind resources and to further expand its wind development in the Midwest.[12]
- In 2011, NYISO implemented new energy transaction scheduling measures for its interconnections with Québec – with hourly times reduced to 15-minute intervals – in order to enhance the integration of variable energy resources on its system. It is estimated that NYISO has yielded upwards of US$20 million in annual savings through this improved interregional transaction coordination.

III. "Architecture of Abundance" Energy Diplomacy Discussion Draft

Based on the above information and context, CEA wishes to share a few observations on the Title III – Energy Diplomacy discussion draft set to be discussed during today's hearing.

Section 3104 – Authorization of Cross-Border Infrastructure Projects

CEA agrees with the discussion draft's finding that "the United States should establish a more uniform, transparent, and modern process for the construction, connection, operation, and maintenance of…electric transmission facilities for the…transmission of electricity to and from Canada and Mexico…" CEA respectfully suggests that there are benefits to be gained from modernizing the existing DOE Presidential Permit process – particularly when one bears in mind the commitments that DOE has made around how this process should function and under what timelines. The public information provided by DOE to Presidential Permit applicants and other

[10] https://www.misoenergy.org/_layouts/MISO/ECM/Download.aspx?ID=160821, p. 49.
[11] http://www.mnpower.com/Content/Documents/Company/PressReleases/2011/20110524_NewsRelease.pdf.
[12] For example, see Minnesota Power's May 2012 comments to the U.S. Senate Committee on Energy and Natural Resources on the *Clean Energy Standard Act of 2012*: http://www.gpo.gov/fdsys/pkg/CHRG-112shrg74903/pdf/CHRG-112shrg74903.pdf.

stakeholders states that DOE requires approximately 6-18 months to issue a Presidential Permit.[13] However, a quick glance at the recent record in Presidential Permit proceedings reveals a trend of delays and much longer timelines.

For example, since 2000, five applications for construction and operation of new Canada-U.S. international power lines ("IPLs") have successfully moved through the Presidential Permit process. The permitting times for these projects ranged from six months (for an IPL only one mile in length and thus exempt from DOE environmental review) to four-and-a-half years for the most recently-approved project (the Champlain Hudson Power Express).

In addition, over the last 10 years, many Presidential Permit proceedings at DOE have featured either physical or operational changes to existing IPLs, or transfers of ownership of existing IPLs. Processing times for these applications have also suffered significant inconsistencies. For example, in 2010, a CEA member filed a request to amend its DOE Presidential Permit for purposes of a straightforward transfer of ownership.[14] This took approximately two-and-a-half years to process. What's more, this application entailed a request to reverse a previous transfer of ownership executed by the company, which in the earlier instance took only six months to complete.

CEA respectfully suggests (and has done so in recent years as part of its engagement with DOE staff) that a take-away from the recent record of Presidential Permit proceedings is an inconsistency in the timelines for processing applications – whether the application is for construction and operation, physical or operational change, or transfer of ownership. While CEA is not aware of any specific circumstances in which inconsistencies have jeopardized the viability of a project, such inconsistencies inject uncertainty and risk into the project from a planning perspective, and can result in unnecessary escalation of administrative costs for proponents and opportunity costs for consumers.

In order to maximize the benefits associated with cross-border electric integration, it is imperative that Canada and the U.S. have permitting approaches that are modernized, efficient, imbued with a high standard for environmental protection and closely aligned. CEA believes that these critical goals will be promoted by several provisions in Section 3104 – namely, the establishment of fixed timelines and the achievement of efficiencies in project reviews, including for routine proceedings such as transfers of ownership.

In addition, CEA supports the proposed repeal of the statutory requirement for DOE electricity export authorizations, as that which is governed under these authorizations is already addressed

[13] *See:* http://energy.gov/oe/services/electricity-policy-coordination-and-implementation/international-electricity-regulatio-6. [Retrieved: June 1, 2015].

[14] A 7.5-mile segment of this IPL loops through U.S. territorial waters, thus requiring possession of a Presidential Permit by the applicable CEA member company.

or can be addressed through separate market or regulatory mechanisms, or a combination thereof.

CEA would observe that many of the principles underlying Section 3104 mirror recent regulatory reforms enacted in Canada. In 2012, in recognition of the cumbersome and often duplicative review processes around major energy infrastructure projects, the Government of Canada modernized the review process for such projects. CEA supports achieving greater synergies between the permitting processes in place on either side of the border, as such synergies can assist in maximizing efficiencies and providing maximum certainty to project sponsors and permit applicants.

Section 3102 – North American Energy Diplomacy

CEA also supports language in the discussion draft encouraging coordination between U.S. and Canadian officials to promote enhanced infrastructure development and cross-border electricity trade, which would benefit both countries. Such language is consistent with recent actions taken by Canada and the U.S. to enhance cross-border cooperation on energy matters.

In terms of the proposal in Section 3102 to require the development of a Canada-Mexico Plan by U.S. agency heads to improve planning and coordination with these countries, CEA appreciates the inclusion of language to provide that the agency heads may consult with "international participants" such as CEA in the development of the Plan. However, given the complicated and often challenging nature of developing a cross-border energy framework, there may be value in adding language to the Section to encourage U.S. agency officials to work directly with their counterparts in Canada and Mexico in the development of such a framework.

Given the shared benefits of the North American grid and its need for significant upgrades in the coming years, CEA supports steps being taken by policymakers in both Canada and the U.S. to enact meaningful regulatory reforms and to better support cross-border infrastructure development and trade. CEA appreciates the thoughtful and worthwhile contribution to this broader effort reflected in the Energy Diplomacy discussion draft.

IV. QER Chapter on "Integrating North American Energy Markets"

Among major U.S. executive branch energy and environmental strategies in recent memory, the QER is arguably the most attuned to the reality and value of the integrated nature of North American energy markets. The QER does not merely acknowledge the vast depth and number of cross-border energy linkages – it affirms their many benefits and offers proposals to strengthen and expand them. In fact, of the four crosscutting requirements which shape the fundamental objectives of the QER, one of them is the imperative to enhance energy market integration in North America. CEA would argue that this is a distinct feature of the QER, in contrast with

foundational U.S. energy policies of the past. CEA therefore strongly commends DOE for its thoughtful and valuable work in acknowledging, embracing and promoting North American energy integration throughout the QER.

The robust attention on the North America-wide picture in the QER is consistent with the heightened level of cooperation on energy and environmental issues which DOE has recently been pursuing with its counterparts in the Governments of Canada and Mexico. For example:

- September 2014 – DOE and Natural Resources Canada ("NRCan") enter into a Memorandum of Understanding ("MOU") to expand bilateral energy and environmental collaboration in 11 areas of activity (several of which involve electricity-related goals).
- December 2014 – DOE, NRCan and the Mexican Ministry of Energy enter into a MOU formalizing trilateral cooperation in areas of strategic interest (including harmonization of energy data and enhancing energy infrastructure resilience).
- May 2015 – DOE, NRCan and the Mexican Ministry of Energy establish the North American Energy Ministers' Working Group on Climate Change and Energy.

CEA is very encouraged by this unprecedented degree of emphasis at the highest levels of government on strengthening energy market integration across North America. Taken together, the QER, the expanding ministerial cooperation, and the Energy Diplomacy discussion draft represent exceptional opportunities to maximize the full potential of an integrated approach to energy development and use among Canada, the United States and Mexico. CEA looks forward to supporting the execution of actions flowing from these initiatives and to the benefits which they will yield for consumers in all three countries.

CEA appreciates this opportunity to provide this statement and would be happy to answer any questions that may arise during the hearing.

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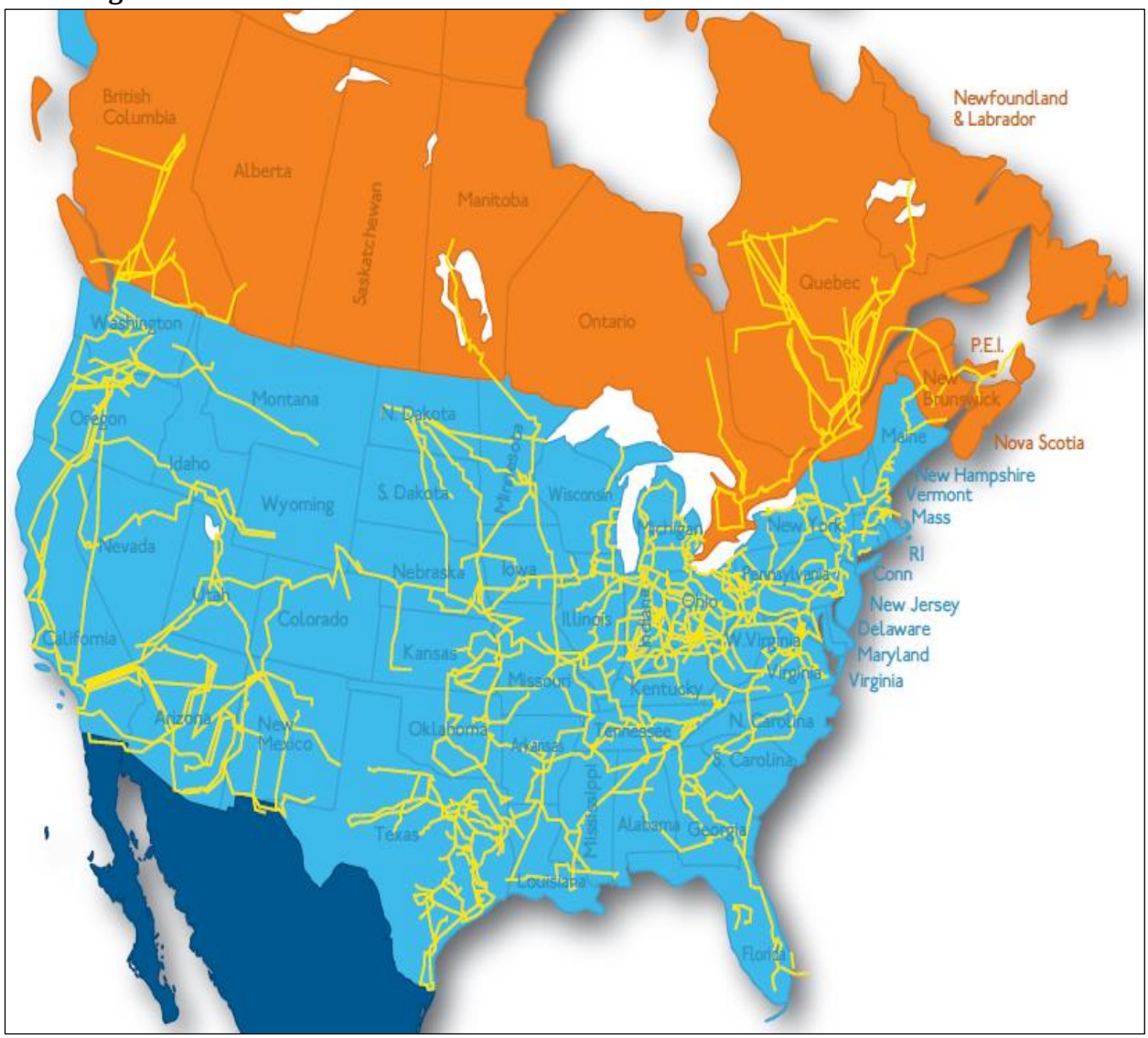
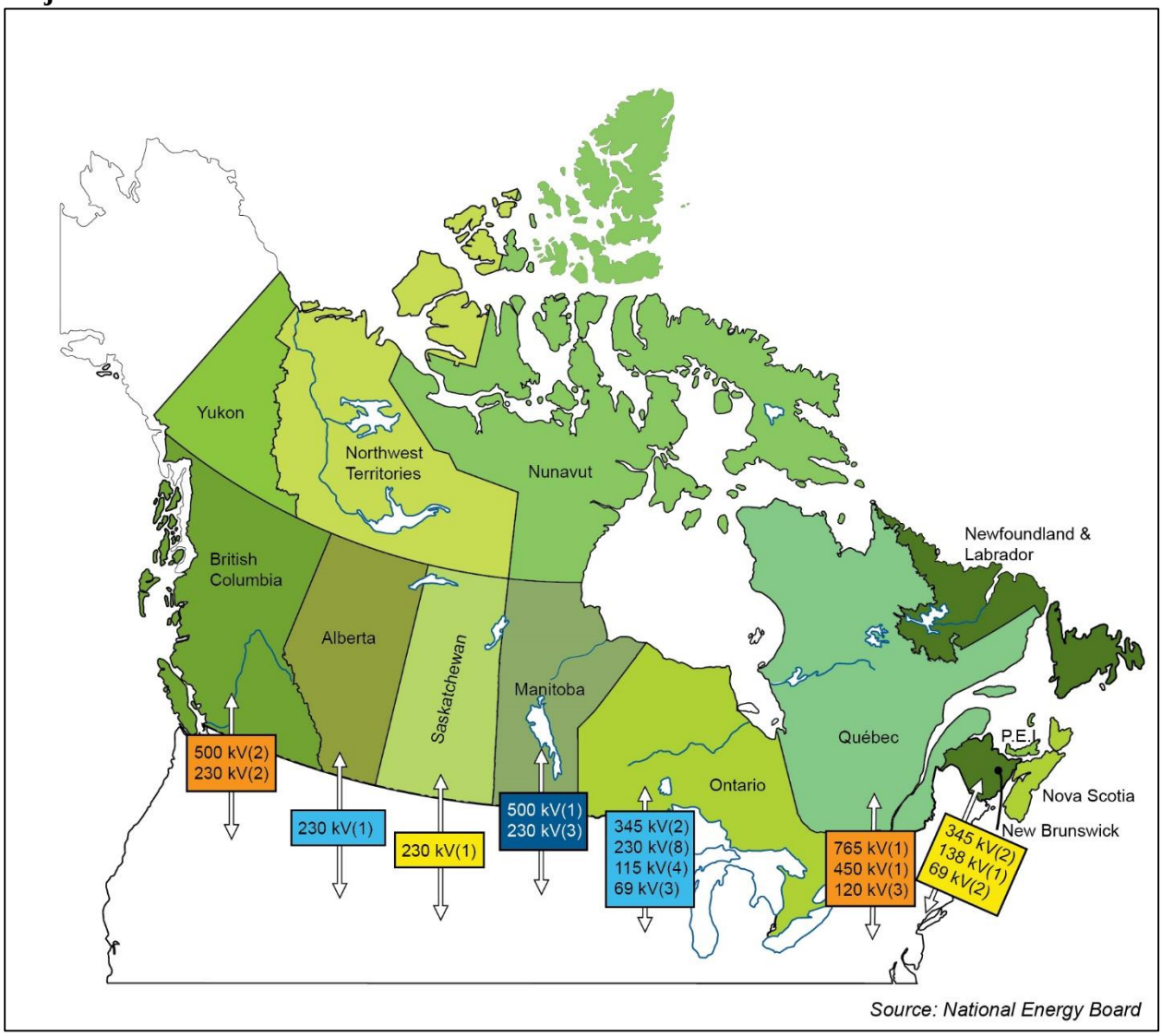
APPENDIX 1

The Integrated North American Transmission Grid



Map copyright Canadian Electricity Association. Lines shown are 345 kilovolts ("kV") and above. There are numerous interconnections between Canada and the U.S. under 345 kV that do not appear on this map.

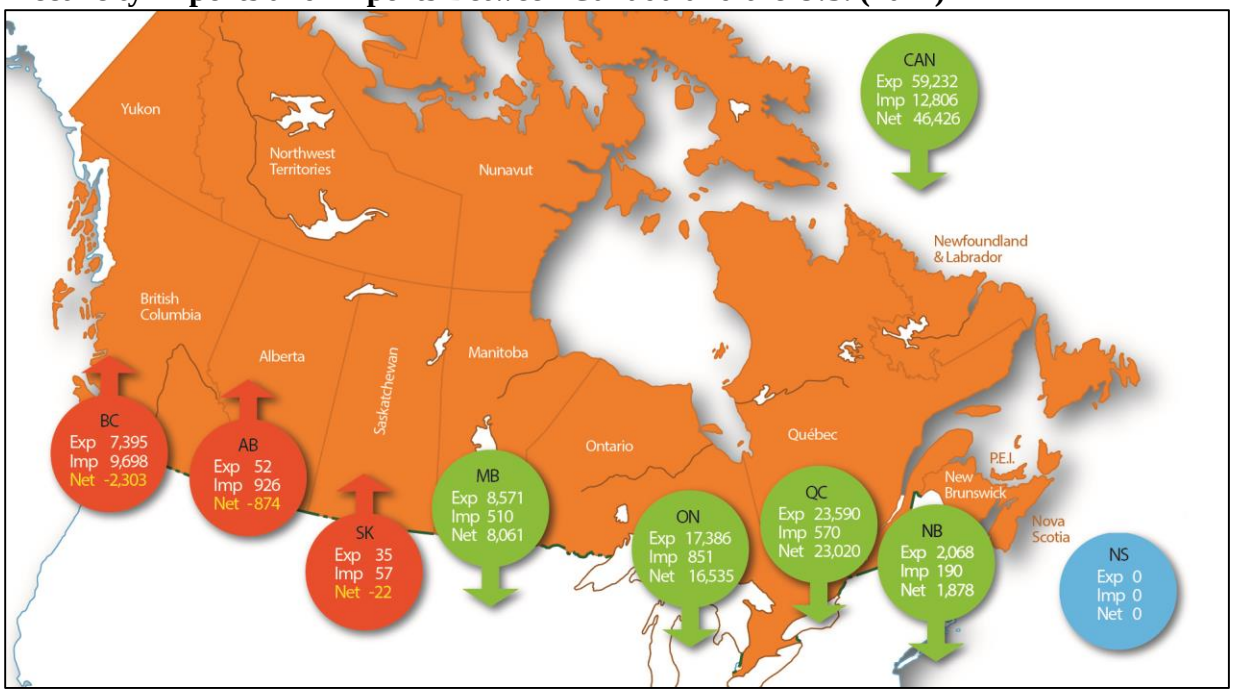
Major Transmission Interconnections Between Canada and the United States



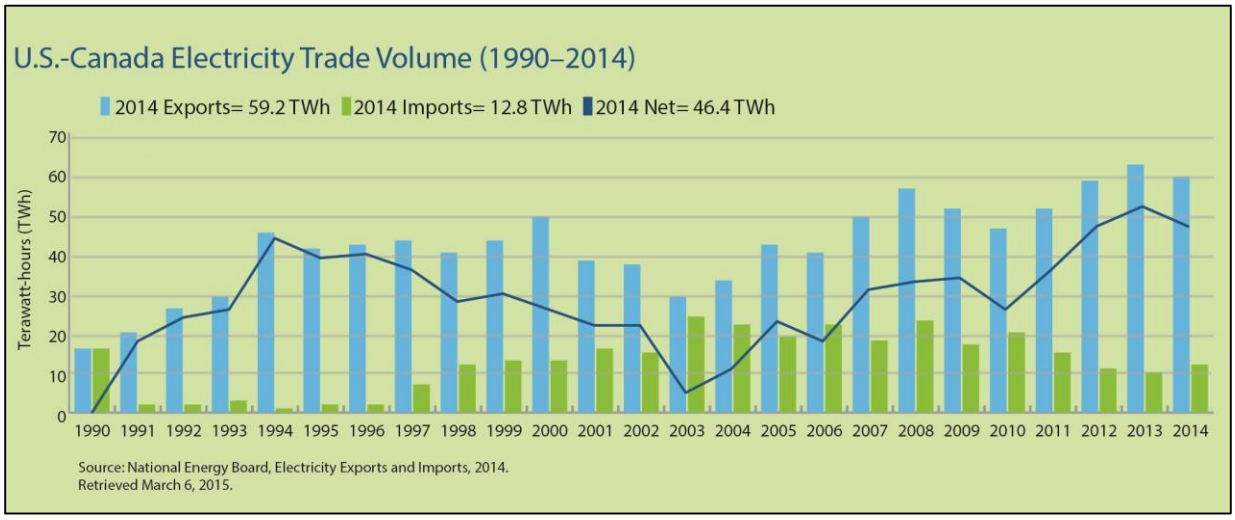
Map copyright Canadian Electricity Association.

APPENDIX 2

Electricity Exports and Imports Between Canada and the U.S. (2014)



Map copyright Canadian Electricity Association. Data displayed are in gigawatt-hours. Numbers may not sum due to rounding. Source: National Energy Board, Electricity Exports and Imports, 2014.



Graph copyright Canadian Electricity Association.

APPENDIX 3

Canadian Electricity Exports as a Percentage of Total Retail Sales in U.S. States/Regions (2010)

1	Vermont	38%
2	Maine	18%
3	Minnesota & North Dakota	12%
4	New England	10%
5	New York	6%
6	Michigan	6%
7	Montana	2%
8	Washington	2%

While Canadian power exports may constitute only a small percentage of electricity consumption in the United States nation-wide, they are critical to the energy security of numerous states and regions. The adjoining table shows the share of total retail electricity sales in various U.S. jurisdictions represented by exports of Canadian electricity into those areas in 2010.

Sources: National Energy Board, Electricity Exports and Imports, 2010; Energy Information Administration, U.S. States, State Profiles and Energy Estimates, Exports and Imports, 2010.

Electricity Generation in the U.S. and Canada by Fuel Type (2013)

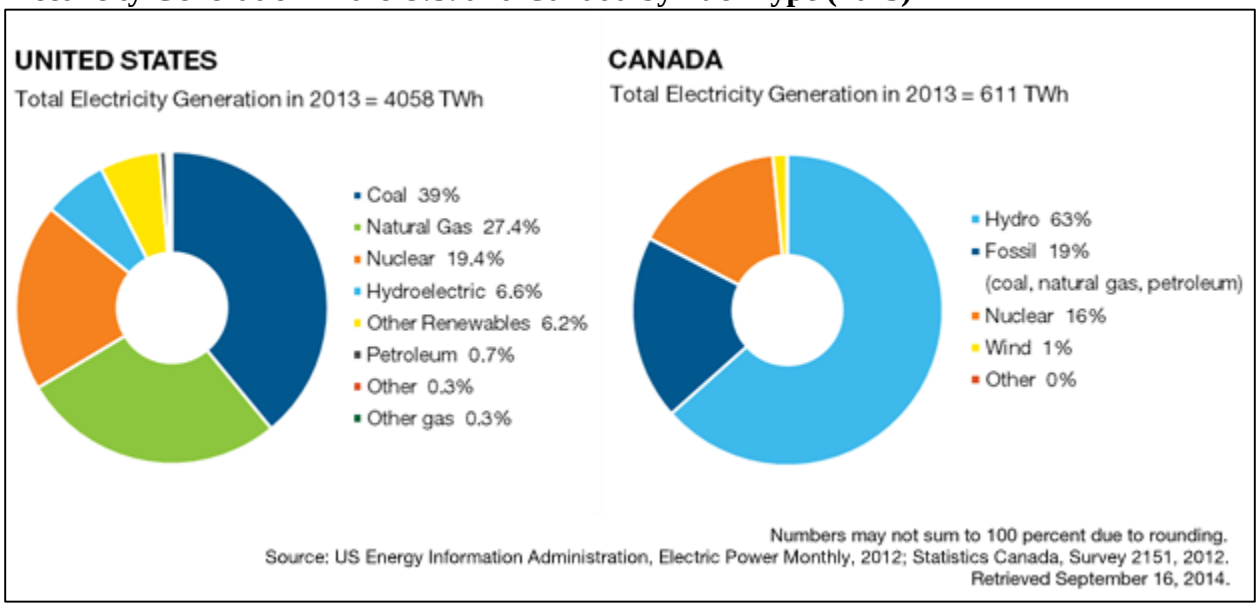


Chart copyright Canadian Electricity Association.