



COMMENTS OF THE CANADIAN ELECTRICITY ASSOCIATION

U.S. DEPARTMENT OF ENERGY REQUEST FOR INFORMATION – NATIONAL POWER TRANSFORMER RESERVE

August 24, 2015

I. Introduction

The Canadian Electricity Association (“CEA”) appreciates the opportunity to provide comments on the U.S. Department of Energy’s (“DOE”) Request for Information (“RFI”) regarding a National Power Transformer Reserve Program (“Reserve”).¹

In the RFI, DOE seeks comments and information from interested parties on the possible establishment of a Reserve of large power transformers (“LPTs”) that support the North American bulk power system (“BPS”), and the design and implementation of such a Reserve.

In these comments, CEA offers a few considerations to inform DOE’s policy development and potential action on this matter.

II. 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 America’s prosperity. CEA members generate, transmit, distribute and market electric energy to industrial, commercial and residential customers across Canada and into the United States 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.); independent system operators; wholesale power marketers; and municipally-owned local distribution companies.

CEA is committed to pursuing opportunities for cooperation with government, industry and public interest partners in Canada and the U.S. on tackling shared challenges – including the reliability, security, and resilience of the North American BPS.

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

Electricity plays an integral role in the U.S.-Canada 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.

The physical linkages between the U.S. and Canada offer numerous advantages to both countries – a higher level of reliable service for customers through enhanced system stability; efficiencies in system operation and fuel management; opportunities to use power from nearby markets to address local contingencies; opportunities presented by

¹ 80 Fed. Reg. 39,422 (2015).



seasonal/time zone variations associated with diversified load; and expanded access to low-carbon and competitively-priced resources.

These linkages between the U.S. and Canadian grids have enabled steady growth in a continent-wide electricity marketplace. In 2014, the value of cross-border sales exceeded US\$3 billion.² Trade enables market participants to take advantage of supply diversity across the wider grid. 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. For example, there are currently half a dozen cross-border transmission projects under various stages of development, with multiple applications pending for DOE Presidential Permits.³

Cross-border integration is therefore critical to the reliability of the North American BPS. DOE itself acknowledged this fact in its seminal Quadrennial Energy Review (“QER”) released in April 2015. In its discussion on the integration of North American energy markets, the QER made positive findings on the significant interconnections between the U.S. and Canadian power grids, and embraced the benefits which flow from such linkages, especially enhanced system performance and resilience.⁴

Given the integrated nature of the grid, reliability and security cannot be achieved in isolation. Protecting the grid requires a coordinated approach between industry participants and governmental authorities on both sides of the border. In view of the challenges posed by evolving and increasingly complex threats to the BPS, such as those noted in the RFI, such cooperation is an even greater imperative.

IV. Comments

1. DOE should be mindful of the integrated and international nature of LPT supply chains, and the constraints under which they operate. If the agency chooses to establish a Reserve, DOE should proceed in a manner and under a timeline which does not exacerbate such constraints or impose any undue pressures on LPT supply chains.

In prior studies and reports, DOE has analyzed many of the distinct features of existing LPT supply chains, and the various challenges which they present. For example, in the April 2014 update to its “Large Power Transformers and the U.S. Electric Grid” report, DOE correctly made the following observations:⁵

² National Energy Board, Electricity Exports and Imports (December 2014). <https://apps.nerb.gc.ca/CommodityStatistics/Statistics.aspx?language=english>.

³ <http://energy.gov/oe/services/electricity-policy-coordination-and-implementation/international-electricity-regulation-2>

⁴ QER – Chapter VI, “Integrating North American Energy Markets” (April 2015), pp. 6-2, 6-5.

⁵ DOE, Office of Electricity Delivery and Energy Reliability, Infrastructure Security and Energy Restoration, “Large Power Transformers and the U.S. Electric Grid” (April 2014 Update).



- The United States and Canada have limited production capability to manufacture LPTs, with utilities in both countries relying heavily on foreign suppliers.⁶
- LPTs require a very long lead time to produce, with average lead times ranging from five to 16 months, increasing from 18 to 24 months during periods of high demand, or extending even further if disruptions or delays occur with respect to supplies, raw materials, or key parts.⁷
- Demand for LPTs is expected to remain high, both domestically and globally.⁸

CEA respectfully maintains that the above considerations should guide DOE's approach to evaluating the prospects for a Reserve and how that Reserve should operate. In particular, CEA members would have strong concerns if DOE proceeded with the establishment of a Reserve in a manner which may exacerbate existing constraints in LPT supply chains, which themselves are already taxed and stretched thin.

For example, if development of a Reserve is ultimately deemed to be a high priority by DOE and/or other U.S. government partners, and DOE seeks to procure new LPTs for inclusion in a Reserve on an accelerated or expedited basis, CEA could foresee significant adverse impacts occurring. In such a scenario, utilities in Canada engaged in the necessary, ongoing cycle of replacing end-of-life equipment could encounter undue impediments to placing and obtaining orders for LPTs.

CEA wishes to avoid any situation in which timelines for the establishment and/or administration of a Reserve program could adversely impact the availability of LPT supplies for Canadian and U.S. utilities, and in turn, place the reliability of the North American BPS at risk. CEA therefore respectfully requests that, if DOE proceeds with standing-up a Reserve, the agency should do so in a manner and under a timeline which does not exacerbate constraints or overwhelm LPT supply chains.

Moreover, given the integrated nature of the North American BPS and the fact that reliability challenges in one country can impact reliability in the other country, potential LPT supply chain impacts in Canada should be a part of any analysis DOE performs with respect to any potential Reserve.

2. In lieu of (or alongside) proceeding with the establishment of a Reserve, CEA encourages DOE to consider the effectiveness of alternative strategies – including existing voluntary, industry-led programs – to mitigate risks associated with the loss of LPTs.

The questions set forth in the RFI send a clear signal that establishment of a Reserve would be an ambitious undertaking, with numerous policy, regulatory, economic, and

⁶ *Ibid*, pp. 25, 31.

⁷ *Ibid*, pp. 9, 31.

⁸ *Ibid*, p. 30.



technical challenges to overcome. Accordingly, CEA respectfully suggests that a prudent course of action would be to exhaust consideration of alternative options and strategies for mitigating the risks of LPT loss, before embarking on a project with such significant potential implications as creation of a Reserve.

In this regard, and in response to RFI Question #1 on “Program Need,” CEA encourages DOE to fully and fairly assess the effectiveness of alternative strategies – either existing strategies already in use, or potential strategies yet to be deployed.

With respect to the former, CEA wishes to draw attention to the numerous voluntary, industry-led spare equipment programs which are in various stages of implementation and which attest to industry’s long-standing, pro-active efforts to effectively manage this piece of the much larger reliability, security, and resilience profile of the BPS.⁹

CEA would highlight such initiatives as SpareConnect, the administration of which is guided by all of the major electric utility associations in the United States and Canada.¹⁰ Launched in 2014, SpareConnect is a networking program enabling a growing number of participating utilities – which currently total over 100 and include several CEA members – to communicate transformer and related equipment needs to points of contacts in other utilities across North America in the event of an emergency or non-routine failure.

In addition, the work of such forums as the Electricity Subsector Coordinating Council (“ESCC”) is becoming increasingly valuable and effective in addressing spare equipment issues.¹¹ Re-constituted in August 2013 as an industry-led CEO-level body, with Canadians as active members, the ESCC has become the chief sector liaison with senior U.S. government officials on addressing security and resilience challenges. The ESCC is currently overseeing an industry working group focused on making recommendations to enhance capabilities for the expedited movement of LPTs across the continent during emergency situations.

These and other existing industry initiatives present numerous opportunities for efficiencies and synergies with any additional action contemplated by governmental partners. Any fulsome assessment by DOE of the potential need for a Reserve must be premised upon a thorough evaluation of the effectiveness and adequacy of existing spare equipment management strategies. If nothing else, DOE should ensure that establishment of a Reserve would complement existing programs and build upon their record of successful risk management.

⁹ Other commenters on the RFI will be better suited to providing the requisite level of additional detail on these initiatives. Nevertheless, CEA feels compelled to highlight them, especially in view of CEA’s participation and equities therein.

¹⁰ <https://spareconnect.com/about/>

¹¹ <http://www.dhs.gov/sites/default/files/publications/Energy-Electricity-SCC-Charter-2013-508.pdf>



3. In step with the mature tradition of U.S.-Canada cooperation on electric reliability, CEA encourages DOE to consider incorporating a mechanism in the Reserve enabling the deployment of LPTs to affected sites in Canada. Such a mechanism could be modelled upon the established principles and practices of regional mutual assistance networks, and could include provisions for fair allocation of deployment costs and thresholds for activation.

Maintaining the reliable operation and security of the North American BPS is inherently a cooperative enterprise between relevant actors in the United States and Canada. This fact is reflected in a wide range of examples, such as the following:

- The shared governance, requirements, guidelines, and participation in key bodies responsible for ensuring and promoting grid reliability – e.g. the North American Electric Reliability Corporation,¹² the North American Transmission Forum,¹³ and the Institute of Nuclear Power Operations.¹⁴
- The inclusion and participation of Canadian electric utilities in Regional Mutual Assistance Groups, and the legacy of significant contributions by Canadian crews to U.S. power restoration efforts, exemplified in such recent events as Hurricane Sandy.¹⁵
- Foundational U.S. policies, such as the QER and U.S. Department of Homeland Security's ("DHS") National Infrastructure Protection Plan issued in 2013.¹⁶

CEA therefore respectfully encourages the DOE to consider incorporating a mechanism into any Reserve that would allow for deployment of LPTs to affected sites in Canada. CEA believes that potential concerns around the transfer of LPTs from a U.S. Reserve to non-U.S. entities can be mollified through the inclusion of such measures as:

- Stringent criteria or thresholds for activation (i.e. deployment exclusively in emergency scenarios during which all other reasonable options have been exhausted, and/or LPT supplies to U.S. entities would not be jeopardized); and
- Fair allocation of deployment costs to applicable Canadian parties.

Such an approach would be wholly consistent with the tradition and spirit of cooperation which continues to animate U.S.-Canada partnerships on grid reliability and security.

¹² <http://www.nerc.com/AboutNERC/keyplayers/Pages/default.aspx>

¹³ <http://www.natf.net/>

¹⁴ <http://www.inpo.info/>

¹⁵ See: <http://energy.gov/sites/prod/files/2014/03/f13/Mar2014EAC-Owens.pdf> (slide 11).

¹⁶ DHS, NIPP 2013: Partnering for Critical Infrastructure Security and Resilience (2013). One of the NIPP's core tenets is that "Infrastructure critical to the United States transcends national boundaries, requiring cross-border collaboration, mutual assistance, and other cooperative agreements" (p. 14).



Moreover, CEA would be prepared to advocate for reciprocal provisions in any analogous transformer reserve program established in Canada in the future.

DOE itself acknowledges in the RFI that the BPS is North American in scope, meaning that the failure of LPTs in one country could impact reliability in the neighboring country. A dialogue among relevant governmental officials prior to the establishment of any Reserve could help to ensure that such a Reserve will enhance, rather than impede, the reliability of the North American BPS. CEA therefore encourages policy-level dialogue with counterparts in the Government of Canada as part of DOE's subsequent consideration of a Reserve program.

V. Conclusion

CEA appreciates the opportunity to provide comments as well as DOE's early outreach to stakeholders on this proposal. We respectfully request that any subsequent action taken by DOE be consistent with the comments set forth herein, and we look forward to remaining engaged in this important initiative.

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