

**Written Statement of Sylvain Clermont
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On Behalf of the Canadian Electricity Association
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Reliability Technical Conference
Panel III: ERO Performance and Initiatives
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Good afternoon Chairman Bay and Commissioners. Thank you for the opportunity to speak on policy issues related to reliability of the North American bulk power system.

My name is Sylvain Clermont and I currently serve as Manager, Transmission Services for Hydro-Québec TransÉnergie (“HQT”). HQT is the transmission division of Hydro-Québec, a vertically-integrated Crown corporation responsible for generation, transmission and distribution in the province of Québec. HQT operates the most extensive transmission system in any North American jurisdiction, including 17 interconnections with the neighbouring provinces of Ontario and New Brunswick, and with the U.S. Northeast.

I am appearing today on behalf of the Canadian Electricity Association (“CEA”), the authoritative voice of the Canadian electricity industry. CEA members generate, transmit, distribute and market electric energy to industrial, commercial and residential customers across Canada and into the United States every day. CEA’s diverse 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 United States); municipally-owned local distribution companies; independent system operators; and wholesale power marketers.

I also currently have the pleasure of serving as Chair of the NERC Member Representatives Committee (“MRC”). Although I am not appearing today in that particular capacity, I will nevertheless refer to recent policy discussions at the MRC which will likely be of interest to the Commission.

As a final point of introduction, please know that CEA is grateful that the Commission continues to extend invitations to industry and governmental representatives from Canada to participate in these conferences. As the Commission is aware, there are diverse regulatory models across Canadian jurisdictions for the adoption,

implementation and enforcement of reliability standards. While the regulatory mechanics may differ, all Canadian stakeholders share a common vision with our U.S. counterparts of an international electric reliability regime which achieves increasing levels excellence in helping to ensure reliability of our integrated bulk power system. CEA members have a strong stake in the success of NERC and are therefore deeply engaged in all aspects of the North American electric reliability enterprise. Once again, we appreciate the opportunity to be represented today to share thoughts on these activities.

1. Future of Reliability Standards Development & “Steady-State”

Although not listed in the agenda’s formal question set, I believe that this panel is an appropriate forum for discussing recent movement in a fundamental area of NERC performance – development of reliability standards.

The discussions at MRC meetings held thus far in 2015, along with the latest version of NERC’s annual Reliability Standards Development Plan (“RSDP”), signal that 2015 will mark the transformation of NERC’s body of reliability standards to “steady-state.” That term is defined as “a stable set of clear, concise, high-quality, and technically sound Reliability Standards that are results-based, including retirement of requirements that do little to promote reliability.”

CEA views the impending achievement of steady-state as a marquee milestone in the history of mandatory standards. Along with all stakeholders, we look forward to a more deliberate and predictable pace of work, focused on continual improvement through periodic reviews. It is our understanding that the plan forward for standards under steady-state will be articulated through this year’s version of the RSDP.

CEA urges NERC and all applicable governmental authorities to maintain a priority focus on the timely transformation to steady-state (and on the achievement of greater cost-effectiveness across the ERO as a result).

Now that steady-state is on the horizon, CEA respectfully encourages all governmental authorities to bear in mind the lessons continuing to be learned from a pace to standards development which was often overwhelming. Primary factors in stretching the standards workload to its limits were the volume – and often the significantly burdensome nature – of directives which had been issued to NERC. We are now at a point where significant progress has been made in addressing outstanding regulatory directives. Likewise, as documented in NERC’s latest *State of Reliability 2015* report,

recent trends in North American bulk power system performance are robust, reflecting a strengthening maturation in compliance with standards.

As the shift towards steady-state nears its completion, CEA urges applicable governmental authorities to remain attuned to how a return to a trend of large numbers of directives may erode the benefits of reaching steady-state, and to exercise heightened forbearance moving forward in contemplating the issuance of directives.

Finally, given that this issue was a focus of previous FERC Technical Conferences, CEA believes it is worth observing that the reforms made to the standards development process in 2013 are demonstrating their effectiveness. These reforms have resulted in clearer, higher-quality standards starting to be developed on a more timely basis.

CEA is encouraged that, despite close calls on a few sensitive projects, NERC has not yet been compelled to exercise Rule 321 in its Rules of Procedure, which enables standards to be developed outside of the normal stakeholder process. CEA remains firmly of the view that avoidance of this “nuclear option” benefits all parties and attests to the maturation and effectiveness of the standards development experience at NERC.

An area where CEA would sound one note of caution, however, is with respect to the use of the waiver provision in the NERC Standards Process Manual. For a time, it appeared that this new provision – ostensibly intended as a last resort in rare circumstances – was being exercised with unanticipated frequency. Instances of utilization appear to have diminished more recently. Nevertheless, CEA urges a sustained effort to avoid recourse to the waiver provision, bearing in mind that any standard developed pursuant to the waiver is inconsistent with American National Standards Institute (“ANSI”) principles.

2. Critical Infrastructure Protection (“CIP”) Standards

Physical Security

Continuing the discussion on standards, CEA members are working rigorously to prepare for compliance with the new requirements for physical security protection set forth in CIP-014. CEA members are seeing value in the program NERC is crafting to assist entities with efficient implementation of CIP-014.

Effective implementation will be contingent upon the degree to which it is faithful to the original expectations articulated by governmental authorities and NERC on two areas of priority: (i) limiting application of the standard to a narrow subset of assets

designated as critical; and (ii) granting flexibility in terms of the scope of security plans developed by responsible entities.

CEA urges particular vigilance with respect to (i), as signals from numerous registered entities' early implementation suggest that the number of assets set to be designated as critical may far exceed the approximate threshold which was originally anticipated.

In addition, CEA appreciates that, in its ultimate approval of CIP-014, the Commission did not proceed with its original proposal for the standard to allow applicable governmental authorities to direct the inclusion or exclusion of facilities in an entity's list of critical facilities. CEA agrees that this proposal raised substantial policy challenges, including conflicts with regulatory frameworks in Canadian jurisdictions.

Cyber Security

CEA appreciates NERC's enduring focus on ensuring registered entities are supported in their transition towards adoption of the Version 5 CIP standards. More recently, there has been good progress at NERC in finalizing and disseminating elements of its transition program.

One issue that has been discussed at length over the last few MRC meetings is the compliance guidance which NERC has developed to support the CIP V5 transition effort. CEA has welcomed the recent clarity and acknowledgement from NERC leadership that approaches set forth in guidance do not represent an exclusive set of options for achieving compliance.

Circling back to the earlier theme of reaching "steady-state," CEA would argue that the milestone reached with the absence of a CIP-related project in the near-term pipeline is a good news story. It reflects how the CIP standards (like others) are now approaching a point of maturation and strength, and how time, energy and focus can now be concentrated on achieving and maintaining robust implementation and compliance.

3. Geomagnetic Disturbance ("GMD") Events & Standards

CEA members fully appreciate the risk posed to the reliable operation of the bulk power system by GMD events. In view of several factors – e.g. latitude; geology; and directional orientation, resistance, and length of transmission lines – power systems across Canada are among the most susceptible in North America to the effects of a

GMD event. In fact, the most well-known experience of a GMD event in North America occurred in the province of Québec in March 1989.¹

GMDs have occurred and continue to occur with varying frequency across Canada. Accordingly, the GMD-related experience and expertise of CEA members is among the most advanced in the North American electricity sector. Our members' understanding of the system impacts of GMDs continues to grow through a variety of efforts, including the development of improved real-time monitoring equipment and enhanced simulation tools and models.

Based on this experience and expertise, CEA member companies have undertaken a mix of strategies in order to effectively mitigate the effects of geomagnetically-induced currents ("GICs") on their systems. Each strategy is tailored to the specific characteristics, needs and risk exposure of each system in its area of operations.

Likewise, CEA members base their ongoing mitigation actions on careful system studies and on approaches which have passed muster in past operating circumstances, while avoiding untested strategies that may inadvertently compromise or place at risk the reliable operation of the bulk power system.

As a matter of policy, CEA urges all applicable governmental authorities to predicate their approaches and potential regulatory actions on GMDs on firm technical grounds, recognizing the experience and expertise that has been cultivated to date – and also recognizing that the science around this phenomenon continues to evolve.

In terms of new information that has emerged on GMDs since the filing of NERC's Phase 2 GMD standard in January 2015, CEA wishes to draw the Commission's attention to an international workshop on space weather held by Natural Resources Canada and the U.S. Department of Energy in March 2015 in Ottawa, Canada. The workshop convened leading experts on GMD from all over the world to exchange thoughts on the latest status and developments in GMD-related science, with the principal area of focus being potential effects on electric power systems. Major themes from the discussion included the following:

¹ While the GMD disturbance led to the collapse of the Hydro-Québec system, it is important to bear in mind that the blackout was traced to improper relay tripping associated with the concurrent geomagnetically-induced current ("GIC") event and also that the pair of transformers destroyed were not damaged by the GIC but by the dynamics of the system collapse.

- Key areas in which further action and understanding on GMDs is required include validating earth models with data collection from magnetometers deployed in close proximity to utilities' GIC monitoring equipment; validation of transformer thermal models using testing; and instrumentation of transformers to validate thermal models under field conditions.
- NERC GMD standards are already influencing the manufacturing of transformers. Several manufacturers reported that they can assist utilities in performing their vulnerability assessments under the Phase 2 GMD standard, by providing data on the susceptibility of transformers to GICs. In addition, manufacturers are engaging in efforts to build GIC-withstand capability into transformers (including through a dedicated IEEE process on a standard around power transformer capability under GMD).

Regarding the Commission's recent NOPR on the Phase 2 GMD standard, CEA is reviewing the proposal and will reserve any feedback for comments filed in response.

4. ESCC & ES-ISAC

Electricity Subsector Coordinating Council ("ESCC")

Given the integrated nature of the North American bulk power system, reliability and security cannot be achieved in isolation. Protecting the grid requires a coordinated approach between industry participants and governmental authorities in both the United States and Canada.

While its primary mission is to liaise with the U.S. government on strategic policy, the ESCC's work is also yielding important co-benefits in terms of further strengthening and cross-pollinating bilateral partnership on grid security and resilience. For example:

- The ESCC is playing a lead role in supporting the deployment of Cybersecurity Risk Information Sharing Program ("CRISP") technology across U.S. utilities. While barriers exist to deployment of CRISP in Canada, the ESCC's activity has prompted CEA members – in cooperation with Canadian authorities and other critical infrastructure sectors – to pursue alternatives to CRISP. An automated cyber threat information service being developed by the financial services sector is showing great promise for CEA members, and is also something being examined by the ES-ISAC for potential interoperability opportunities.
- CEA has engaged in the ESCC's development and refinement of incident response plans to clarify roles and responsibilities for government and industry

during “steady state” and “crisis state.” These efforts are helping to drive thinking on cross-border considerations for incident response, and to better facilitate and formalize relationships between U.S. and Canadian government counterparts.

- The ESCC’s efforts to engage in the development of sector-specific guidance for implementation of the U.S. National Institute of Standards and Technology’s (“NIST”) Cybersecurity Framework is helping to inform analogous activity in Canada, following Public Safety Canada’s endorsement of the NIST Framework as a tool to measure Canadian critical infrastructure sectors’ cyber security protections.

CEA has been actively engaged in the ESCC since its re-constitution in 2013, and maintains a strong interest in the activity of the Council. CEA’s President & CEO sits on the ESCC Steering Committee along with other industry association leaders, while CEA staff and member company subject-matter experts continue to contribute to several of the work streams being advanced by the ESCC.

Perhaps the most compelling endorsements of the ESCC’s growing success and effectiveness are the engagement postures of governmental authorities in Canada and the U.S. More senior Government of Canada representatives are seeking to participate in the dialogue between the ESCC and its U.S. government interlocutors. And on the U.S. side, a forthcoming report from a presidential advisory body is set to single out the ESCC as a model for critical infrastructure sector collaboration with government.²

CEA continues to see value in ensuring there is a robust Canadian voice in ESCC discussions and initiatives, and believes the ESCC will continue to set the bar in terms of critical infrastructure sector leadership on security and resilience.

Electricity Sector Information Sharing and Analysis Center (“ES-ISAC”)

CEA strongly supports the ES-ISAC having a robust capability to share timely and actionable information to bulk-power system users, owners and operators on security threats and risks.

As the Commission may be aware, the ESCC is in the late stages of a strategic review of the ES-ISAC’s capabilities aimed at proposing a path forward for an enhanced ES-ISAC

² See: <http://www.dhs.gov/sites/default/files/publications/NIAC-CEO-Final-Report-QBM-Draft-508.pdf>. The National Infrastructure Advisory Council (“NIAC”) advises the U.S. President on issues related to critical infrastructure security and resilience.

model. CEA has actively supported and participated in this review, and believes that a key outcome must be ensuring that the enhanced model is effective and inclusive from a North America-wide perspective.

5. Other – EPA Clean Power Plan

Although the Clean Power Plan is the subject of Panel II of this conference, CEA nevertheless wishes to reference recent information that may be of interest to the Commission in its ongoing engagement around the EPA's proposed rule.

During each of the regional Technical Conferences, information on net energy flows from Canada was included in the FERC staff overview presentations on regional infrastructure. Several panelists at the conferences underscored their support for U.S. states and affected entities being able to utilize imports of non-emitting electricity from Canada as a greenhouse gas ("GHG") reduction strategy under the Clean Power Plan.³

In late April, the Center for Climate and Energy Solutions ("C2ES") – a leading U.S. environmental think tank – released a policy paper examining the role imports of Canadian hydroelectricity can play under the U.S. Clean Power Plan.⁴ The paper addresses several possible policy options for the treatment of imported Canadian hydropower.⁵ 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 emissions reductions.

The report also observes how the majority of Canadian electricity trade with the U.S. is transacted through wholesale energy markets – i.e. markets subject to the Commission's jurisdiction.

CEA would commend C2ES' paper for the consideration of Commissioners and FERC staff, and urge FERC to bear in mind the paper's findings and recommendations as the agency remains engaged in the Clean Power Plan moving forward.

³ (i) Transcript of March 11, 2015 Technical Conference concerning the EPA's Clean Power Plan (Eastern Meeting) under Docket No. AD15-4, page 208.; (ii) Transcript of 3/31/15 technical [sic] conference held in St. Louis, MO re technical conference on Environmental Regulations and Electric Reliability, Wholesale Electricity Markets etc. under AD15-4, pages 125, 177.

⁴ <http://www.c2es.org/newsroom/releases/canadian-hydropower-help-states-achieve-carbon-cutting-goals>.

⁵ Hydropower is the largest, but not the only, source of non-emitting electricity exported from Canada into the U.S.

6. Conclusion

Once again, I thank the Commission for the privilege of being here today and would be happy to answer any questions that you may have.