Prepared Statement of Ed Tymofichuk
Vice-President, Transmission
Manitoba Hydro
On Behalf of the Canadian Electricity Association

FERC Technical Conference on Priorities for Addressing Risks to the Bulk-Power System

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Good afternoon Chairman Wellinghoff and Commissioners. Thank you for the opportunity to speak today.

My name is Ed Tymofichuk and I am Vice-President, Transmission at Manitoba Hydro. Manitoba Hydro is a Canadian Crown Corporation utility that owns and operates electric generation, transmission and distribution facilities, and natural gas distribution facilities in the province of Manitoba. I am appearing today on behalf of the Canadian Electricity Association ("CEA"), the national forum and voice of the evolving electricity business in Canada. CEA members account for most of Canada's installed generating capacity and high voltage transmission.

I am the outgoing Chairman of the NERC Member Representatives Committee ("MRC") and currently the Chair of the Board of Directors for the Midwest Reliability Organization. In February 2010, if you had asked me how I pictured my term at the helm of the MRC, I certainly could not have predicted the significant developments which were to follow. I do recall saying that I was quite optimistic about the industry and the ERO. To be sure, 2010 presented a host of challenges to all of the stakeholders engaged in the North American reliability regime. However, I am very encouraged by the progress that has been made since last March in strengthening cooperation and communications amongst key players and stakeholders, and in focusing on setting and addressing priorities – priorities that are most material to the achievement of improved Bulk Power System reliability.

I am likewise encouraged to see that FERC maintains an eager appetite to continue facilitating the kind of dialogue which we are having today. These discussions and communications are important, like mortar between bricks, in building respect and

reinforcing trust amongst all of the members of the international reliability community. Their regular occurrence going forward will remain vital to successfully achieving our mutual goal of ensuring reliability of bulk electricity supply across the continent.

Similarly, I thank the Commission for ensuring that Canadian industry is represented at this forum. CEA members are committed to seeing our strong bilateral relationship on electricity continue to flourish. With the Canadian and U.S. systems interconnected at over 30 points, the integrated grid provides numerous benefits to consumers in both countries, such as greater access to low-emitting resources and efficiencies in fuel management. However, grid integration also means that reliability and security cannot be achieved in isolation. It is therefore essential to include the voice of Canadian utilities in the ongoing dialogue over the shared challenges and risks we face on both sides of the border.

Moreover, CEA welcomed FERC's recent re-affirmation of the need for working together with governmental authorities in Canada, so that the ERO can truly operate on an international basis. We were encouraged by language in a September 2010 FERC Order reinforcing FERC's commitment to consult regularly with international regulators on topics of mutual interest through existing forums such as technical conferences and the regular meetings of the Trilateral Electric Reliability Oversight Group, comprised of governmental authorities from Canada, the U.S. and Mexico.

CEA remains very supportive of the standard-setting model envisioned in section 215 of the U.S. Federal Power Act; in analogous legislative models in Canadian provinces; and, in the various agreements that NERC has entered into with the appropriate governmental authorities in Canada for the development, implementation and enforcement of standards. At the heart of these agreements and legislative frameworks is the key principle of active, effective participation by North American industry experts and stakeholders in the standards process. This process assures that Canadian utilities are included in the development and application of standards across North America. Canadian governmental authorities rely heavily on this model in accepting the reliability standards developed by NERC.

CEA remains concerned by any actions taken by the Commission that could undermine the fundamental objective and design of the standards process. Of course, we must always be looking to improve the timeliness and flexibility of the standard-setting process – and NERC continues to make good progress, with the support of FERC, Canadian governmental authorities and industry stakeholders. But CEA continues to be concerned about FERC's hands-on approach to its oversight of NERC, which we believe interferes with the ability of NERC and the industry to address the most

important reliability issues in the most effective manner. More standards is not a measure of more reliability. Instead, we must focus on developing or improving those core sets of standards that are most important for grid reliability. We believe that solutions to arising reliability issues should be developed in a collaborative and coordinated manner with the industry, NERC and Canadian governmental authorities, but also in deference to the established principles behind standards development and approval. We encourage forbearance by FERC to be a pillar in its oversight role.

While CEA strongly supports the work of NERC, CEA recognizes that challenges remain, and many of those challenges relate to evolving changes in the makeup and operations of the bulk power system. I would like to provide a Canadian perspective on several of those emerging issues.

The introduction of Smart Grid technologies and the interconnection of renewable resources will present challenges to reliability over the coming decade and beyond. Such emerging technologies offer significant economic and environmental benefits to our respective economies, but also require additional work for transmission planners and operators to ensure that the grid remains reliable, resilient and secure. Research is currently ongoing to understand the effects that Smart Grid technologies and intermittent resources will have on the grid, and measures are being implemented to address any emerging issues. For example, many Canadian utilities are working to improve the accuracy of forecasting for intermittent generation to allow for the reliable integration of renewable technologies. CEA and its members also continue to support the work of the Task Force on Smart Grid Technology and Standards established by the Canadian National Committee of the International Electrotechnical Commission. The task force is responsible for supporting the integration of national and international standardization on Smart Grid technology, and is expected to issue its final report with recommendations later this summer.

In addition to these technology-related issues, I see two other critically important challenges impacting the industry over the next 10 years. First, obtaining regulatory approvals and licenses for new rights-of-way is and will continue to be a major challenge to building new transmission infrastructure necessary for reinforcement and enhancement of system reliability. Secondly, a looming question is whether or not the workforce 10 years down the road will have the skills and experience to cope with a more technologically sophisticated grid.

Cyber security is another ongoing critical issue. CEA fully appreciates that FERC maintains a strong interest in knowing the extent to which NERC CIP standards are ensuring the cyber security of the electric grid. Canadian governmental authorities are

fully committed to addressing cyber security in Canada. And while strong cyber security standards are important, the achievement of robust cyber security protection for the grid will entail a host of other requirements beyond CIP standards. For example, strong information sharing between government and industry is critical to maintaining a secure grid. Alerts to the utility industry regarding imminent cyber security threats that include actionable information are a necessary element of a secure grid. Moreover, because our grid is international, information sharing and close coordination must occur between the appropriate governmental authorities in Canada and the U.S. In conjunction with robust CIP standards, formal collaboration and the sharing of necessary threat information will go a long way in strengthening the protection of the Bulk Power System against cyber threats and vulnerabilities. The recently-announced initiative between the Department of Energy, the National Institute of Standards and Technology, and NERC serves as a timely example of the kind of industry-government collaboration that is needed to enhance cyber security on the grid.

The potential threats posed by electromagnetic pulse ("EMP") events emanating from direct and deliberate attacks on civilian infrastructure raise a series of important and complex questions – particularly in relation to the assessment of costs to either users or the population at large to make a system resilient against a deliberate EMP attack. CEA members are not certain that the threat of an EMP attack represents a reliability concern, given that such an attack could inflict economy-wide damage well beyond the scope of electric reliability. The electricity industry needs governments to take leadership and provide guidance. A consensus – and an international one at that, in view of the potentially widespread consequences of an EMP attack – needs to be reached on the tradeoffs between making massive investments for full protection against and recovery from a low probability but severe impact event, and addressing other pressing priorities.

I would distinguish this aspect of the EMP issue from geomagnetic disturbances ("GMDs") – e.g. solar storms or flares – whose effects are within the domain of the electric industry. An approach to GMDs is already underway, with NERC having adopted a "Critical Infrastructure Strategic Roadmap" in November 2010, prepared by the Electricity Sub-Sector Coordinating Council ("ESCC"). The ESCC called for industry to place renewed emphasis on several high-impact risks to reliability, including GMDs. The Roadmap recommends an aggressive course of action to properly understand the risks posed by GMDs and to develop realistic and effective solutions.

As a final matter, with respect to other emerging reliability issues, CEA suggests consideration of the long-term potential effects of climate change on Bulk Power System

reliability. Mitigating the future effects of shifting weather patterns on factors ranging from lake temperatures to annual rainfalls and water levels may be a significant challenge for many Canadian utilities. While NERC has previously examined the reliability impacts of legislative and regulatory initiatives to guard against the effects of climate change, it may be appropriate and necessary in the coming years to begin assessing more closely the potential impacts of climate change itself.

In conclusion, CEA looks forward to continuing to work with NERC, the Commission, Canadian regulators and authorities, and other industry stakeholders in pursuing mutually beneficial solutions for addressing risks to the North American Bulk Power System. I thank the Commission for its attention and would be happy to answer any questions that you may have.