Comment Report

Project Name:	Project 2018-01 Canadian-specific Revisions to TPL-007-2
Comment Period Start Date:	10/2/2018
Comment Period End Date:	11/15/2018
Associated Ballots:	Project 2018-01 Canadian-specific Revisions to TPL-007-2 Implementation Plan IN 1 OT Project 2018-01 Canadian-specific Revisions to TPL-007-2 Project 2018-01 Canadian-specific Revisions to TPL-007-2 IN 1 ST

There were 8 sets of responses, including comments from approximately 41 different people from approximately 30 companies representing 10 of the Industry Segments as shown in the table on the following pages.

Questions

1. The SDT developed a Canadian Variance to Requirement R7, Part 7.3 to accommodate for required regulatory approvals in different Canadian jurisdictions. For example, Canadian entities may be required to obtain a regulatory approval for investments associated with Corrective Action Plans (CAPs). Such approval may limit the scope or modify the timeline of a CAP. Do you agree that the proposed Variance to Part 7.3 allows for the necessary flexibility to take into account the required regulatory approvals within your jurisdiction? If you do not agree, or if you agree but have comments or suggestions for the Variance, provide your recommendation, explanation, and proposed modification.

2. Do you agree that the language in the introduction section of Attachment 1-CAN adequately describes the Canadian Variance? If you do not agree, or if you agree but have comments or suggestions, provide your recommendation, explanation, and proposed modification.

3. The SDT developed the Attachment 1-CAN, as an alternative to Attachment 1, for defining a 1-in-100 year GMD planning event to be used in the benchmark and supplemental GMD Vulnerability Assessment(s). The proposed alternative approach in Attachment 1-CAN for the GMD planning event is to be based on Canadian-specific data and statistical analyses. Do you agree that the proposed approach to define a 1-in-100 year GMD event is sufficiently clear and flexible for Canadian entities while achieving an equivalent level of reliability of TPL-007-2? If you do not agree, or if you agree but have comments or suggestions for defining a GMD event, provide your recommendation, explanation, and proposed modification.

4. The SDT proposed that the calculation of the geoelectric fields, which is based on geomagnetic field variations and earth transfer function, must be based on technically justified information. Technically justified information includes technical documents produced by governmental entities, technical papers published in peer-reviewed journals, or data sets gathered using sound scientific principles. Do you agree that technical documents, as defined in Attachment 1-CAN, are credible sources of technically justified information? If you do not agree, or if you agree but have comments or suggestions for defining what constitute a technically justified information, provide your recommendation, explanation, and proposed modification.

5. If you have any additional comments regarding the completeness, the adequacy, and the accuracy of the proposed modifications for the SDT to consider, provide them here.

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
Manitoba Hydro	Mike Smith	1		Manitoba Hydro	Yuguang Xiao	Manitoba Hydro	5	MRO
					Karim Abdel-Hadi	Manitoba Hydro	3	MRO
					Blair Mukanik	Manitoba Hydro	6	MRO
					Mike Smith	Manitoba Hydro	1	MRO
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,8,9,10	NPCC	RSC no Dominion	Guy V. Zito	Northeast Power Coordinating Council	10	NPCC
					Randy MacDonald	New Brunswick Power	2	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Brian Robinson	Utility Services	5	NPCC
					Alan Adamson	New York State Reliability Council	7	NPCC
					David Burke	Orange & Rockland Utilities	3	NPCC
					Michele Tondalo	UI	1	NPCC
					Helen Lainis	IESO	2	NPCC
					Michael Jones	National Grid	3	NPCC
					Sean Cavote	PSEG	4	NPCC
					Kathleen Goodman	ISO-NE	2	NPCC
					Salvatore Spagnolo	New York Power Authority	1	NPCC
					Shivaz Chopra	New York Power Authority	6	NPCC
					David Kiguel	Independent	NA - Not Applicable	NPCC

					Silvia Mitchell	NextEra Energy - Florida Power and Light Co.	6	NPCC
					Paul Malozewski	Hydro One Networks, Inc.	3	NPCC
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Caroline Dupuis	Hydro Quebec	1	NPCC
					Chantal Mazza	Hydro Quebec	2	NPCC
					Michael Forte	Con Edison	1	NPCC
					Laura McLeod	NB Power Corporation	5	NPCC
					Nick	Kowalczyk	1	NPCC
					Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1	NPCC
					John Hastings	National Grid	1	NPCC
					Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
					Sofia Gadea-Omelchenko	Con Edison	5	NPCC
					Joel Charlebois	AESI - Acumen Engineered Solutions International Inc.	5	NPCC
					Quintin Lee	Eversource Energy	1	NPCC
					Mike Cooke	Ontario Power Generation, Inc.	4	NPCC

1. The SDT developed a Canadian Variance to Requirement R7, Part 7.3 to accommodate for required regulatory approvals in different Canadian jurisdictions. For example, Canadian entities may be required to obtain a regulatory approval for investments associated with Corrective Action Plans (CAPs). Such approval may limit the scope or modify the timeline of a CAP. Do you agree that the proposed Variance to Part 7.3 allows for the necessary flexibility to take into account the required regulatory approvals within your jurisdiction? If you do not agree, or if you agree but have comments or suggestions for the Variance, provide your recommendation, explanation, and proposed modification.

Leonard Kula - Independent Electricity System Operator - 2

Answer	Yes
Document Name	

Comment

The proposed language change provides the flexibility to account for the regulatory approval process in Canada.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion

Answer	Yes
Document Name	

Comment

The proposed language change provides the flexibility to account for the regulatory approval process in Canada.

Likes 0	
Dislikes 0	

Response

Nicolas Turcotte - Hydro-Qu?bec TransEnergie - 1

Answer	Yes
Document Name	

Comment

Likes 0	

Dislikes 0	
Response	
Junji Yamaguchi - Hydro-Qu?bec Production - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
John Pearson - John Pearson On Behalf of: Michael Puscas, ISO New England, Inc., 2; - John Pearson	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Payam Farahbakhsh - Hydro One Networks, Inc. - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mike Smith - Manitoba Hydro - 1, Group Name Manitoba Hydro	
Answer	
Document Name	
Comment	
The posted version of “Proposed TPL-007-2 Canadian Variance” has proposed changed to R7 and Part 7.3 as noted above. However, the “Redline to TPL-007-2” version does not have these changes. Please review. In Manitoba, regulatory approvals are not required for specific capital projects. Therefore the proposed variance is not required in this jurisdiction. Regulations within Manitoba currently prevent Manitoba Hydro from adopting standards that require construction or enhancement of facilities in Manitoba. Manitoba has no suggestions for a variance that would alleviate this concern. As a result Manitoba Hydro adopted TPL-007 as its own standard (MH-TPL-007-2).	
Likes 0	
Dislikes 0	
Response	

2. Do you agree that the language in the introduction section of Attachment 1-CAN adequately describes the Canadian Variance? If you do not agree, or if you agree but have comments or suggestions, provide your recommendation, explanation, and proposed modification.

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion

Answer	Yes
Document Name	

Comment

The effective geo-electric field depends on the both geomagnetic latitude and earth conductivity. Both of these factors tend to be larger in Canada compared with most with other places subject to NERC standards so the risk of higher GICs in Canada is higher. The introduction adequately describes the balance the Canadian variance will achieve: preserving an equivalent level of reliability (e.g. 1-in-100 year event) while allowing the flexibility to use an approach that can be demonstrated to better match Canadian circumstances.

Likes 0	
Dislikes 0	

Response

Leonard Kula - Independent Electricity System Operator - 2

Answer	Yes
Document Name	

Comment

The effective geo-electric field depends on the both geomagnetic latitude and earth conductivity. Both of these factors tend to be larger in Canada compared with most with other places subject to NERC standards so the risk of higher GICs in Canada is higher. The introduction adequately describes the balance the Canadian variance will achieve: preserving an equivalent level of reliability (e.g. 1-in-100 year event) while allowing the flexibility to use an approach that can be demonstrated to better match Canadian circumstances.

Likes 0	
Dislikes 0	

Response

Payam Farahbakhsh - Hydro One Networks, Inc. - 1

Answer	Yes
Document Name	

Comment

Likes 0	

Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
John Pearson - John Pearson On Behalf of: Michael Puscas, ISO New England, Inc., 2; - John Pearson	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Mike Smith - Manitoba Hydro - 1, Group Name Manitoba Hydro	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Junji Yamaguchi - Hydro-Qu?bec Production - 5	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Nicolas Turcotte - Hydro-Qu?bec TransEnergie - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

3. The SDT developed the Attachment 1-CAN, as an alternative to Attachment 1, for defining a 1-in-100 year GMD planning event to be used in the benchmark and supplemental GMD Vulnerability Assessment(s). The proposed alternative approach in Attachment 1-CAN for the GMD planning event is to be based on Canadian-specific data and statistical analyses. Do you agree that the proposed approach to define a 1-in-100 year GMD event is sufficiently clear and flexible for Canadian entities while achieving an equivalent level of reliability of TPL-007-2? If you do not agree, or if you agree but have comments or suggestions for defining a GMD event, provide your recommendation, explanation, and proposed modification.

Leonard Kula - Independent Electricity System Operator - 2

Answer	Yes
Document Name	

Comment

Requiring the methodology and assumptions specified in TPL-007-2 to be used unless the data and sensitivity assessment conditions in the Canadian Variance are both satisfied is sufficiently clear and flexible for Canadian entities while achieving an equivalent level of reliability.

Likes 0	
Dislikes 0	

Response

Mike Smith - Manitoba Hydro - 1, Group Name Manitoba Hydro

Answer	Yes
Document Name	

Comment

Manitoba Hydro agrees that Attachment 1-CAN allows for alternative methodologies to be used and supports this approach.

Manitoba Hydro is concerned about the precedence of mandating construction for a 1-in-100 year event. NERC TPL-001-4 does not mandate implementation of a CAP for extreme events, typically defined as 1-in-30 or greater. Manitoba Hydro prefers to set its risk tolerance to be in line with TPL-001-4 and has defined a GMD Planning event at 3 V/km, which corresponds to a 1-in-30 year probability. Manitoba Hydro will determine a CAP for a GMD Planning event. Extreme events of 1-in-50 year (3.5 V/km) and much greater than 1-in-100 years (8 V/km) will be studied in a similar manner as extreme events in TPL-001-4.

Likes 0	
Dislikes 0	

Response

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion

Answer	Yes
Document Name	

Comment	
Requiring the methodology and assumptions specified in TPL-007-2 to be used unless the data and sensitivity assessment conditions in the Canadian Variance are both satisfied is sufficiently clear and flexible for Canadian entities while achieving an equivalent level of reliability.	
Likes 0	
Dislikes 0	
Response	
Nicolas Turcotte - Hydro-Qu?bec TransEnergie - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Junji Yamaguchi - Hydro-Qu?bec Production - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
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John Pearson - John Pearson On Behalf of: Michael Puscas, ISO New England, Inc., 2; - John Pearson	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
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Constantin Chitescu - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Payam Farahbakhsh - Hydro One Networks, Inc. - 1	
Answer	Yes
Document Name	
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Likes 0	
Dislikes 0	
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4. The SDT proposed that the calculation of the geoelectric fields, which is based on geomagnetic field variations and earth transfer function, must be based on technically justified information. Technically justified information includes technical documents produced by governmental entities, technical papers published in peer-reviewed journals, or data sets gathered using sound scientific principles. Do you agree that technical documents, as defined in Attachment 1-CAN, are credible sources of technically justified information? If you do not agree, or if you agree but have comments or suggestions for defining what constitute a technically justified information, provide your recommendation, explanation, and proposed modification.

Ruida Shu - Northeast Power Coordinating Council - 1,2,3,4,5,6,7,8,9,10 - NPCC, Group Name RSC no Dominion

Answer	Yes
Document Name	

Comment

The technical documents defined in Attachment 1-CAN are a credible source of technically justified information. Direct measurements (e.g. GIC current, magnetic field) in Canada should be given the highest weighting when assessing technically justified information.

Likes 0	
Dislikes 0	

Response

Mike Smith - Manitoba Hydro - 1, Group Name Manitoba Hydro

Answer	Yes
Document Name	

Comment

This would address one of Manitoba Hydro's original concerns with the standard and not lock the standard to "old" research but allow the latest research/data to be used in assessments.

Likes 0	
Dislikes 0	

Response

Leonard Kula - Independent Electricity System Operator - 2

Answer	Yes
Document Name	

Comment

The technical documents defined in Attachment 1-CAN are a credible source of technically justified information. Direct measurements (e.g.

GIC current, magnetic field) in Canada should be given the highest weighting when assessing technically justified information.	
Likes 0	
Dislikes 0	
Response	
Payam Farahbakhsh - Hydro One Networks, Inc. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Constantin Chitescu - Ontario Power Generation Inc. - 5	
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Document Name	
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Answer	Yes
Document Name	
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Likes 0	
Dislikes 0	
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Junji Yamaguchi - Hydro-Qu?bec Production - 5	
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Likes 0	
Dislikes 0	
Response	
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Answer	Yes
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Comment	
Likes 0	
Dislikes 0	
Response	

5. If you have any additional comments regarding the completeness, the adequacy, and the accuracy of the proposed modifications for the SDT to consider, provide them here.

Nicolas Turcotte - Hydro-Qu?bec TransEnergie - 1

Answer	
Document Name	

Comment

The SDT should consider the impact of the harmonics generated by the GMD eventon the system performance. These were the main cause for the 1989 blackout in Quebec.

Likes 0	
Dislikes 0	

Response

Leonard Kula - Independent Electricity System Operator - 2

Answer	
Document Name	

Comment

NA

Likes 0	
Dislikes 0	

Response

Mike Smith - Manitoba Hydro - 1, Group Name Manitoba Hydro

Answer	
Document Name	

Comment

There are portions of Attachment 1-CAN that are not related to the assessment methodology and may fit better within the requirements, such as:

Modeling assumptions shall also be clearly documented and technically justified. An entity may

use sensitivity analysis to identify how the assumptions affect the results.

A simplified model may be used to perform a GMD Vulnerability Assessment(s), as long as the

model is more conservative than a more detailed model.

When interpreting assessment results, the entity shall consider the maturity of the modeling,

toolset, and techniques applied.

Additional comments – made during previous rounds of commenting of TPL-007

Manitoba Hydro does not support the supplemental GMD assessment in R8 and associated additional thermal analysis required in TPL-007-2 R9 and R10. The science is still evolving on localized enhancements.

Manitoba Hydro also notes that R12 serves no obvious purpose in meeting the stated objectives or purpose of the standard; the collection of magnetometer data is performed by NRCAN and several Canadian Universities within Canada.

Manitoba Hydro will not be able to adopt this standard as written due to conflicts with local legislation.

Likes 0	
Dislikes 0	

Response

Payam Farahbakhsh - Hydro One Networks, Inc. - 1

Answer	
Document Name	

Comment

The proposed standard could benefit from adding a requirement to review the definition of the alternative benchmark or supplemental GMD events at or prior to the beginning of each standard assessment cycle. This review would allow the future assessments to leverage the results of ongoing research and consider new information that may be discovered in the future from growing data sets.

Likes 0	
Dislikes 0	

Response