

Consideration of Comments

Project Name:	2018-01 Canadian-specific Revisions to TPL-007-2
Comment Period Start Date:	8/10/2018
Comment Period End Date:	9/6/2018

There were 9 sets of responses, including comments from approximately 36 different people from approximately 28 companies representing 10 of the Industry Segments as shown in the table on the following pages.

All comments submitted can be reviewed in their original format on the [project page](#).

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, you can contact the Senior Director of Engineering and Standards, [Howard Gugel](#) (via email) or at (404) 446-9693.

Questions

1. The SDT developed a Canadian Variance to Requirement R7 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 Requirement R7 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 ‘Background’ and ‘General Considerations’ sections 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 regionally 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 may include technical documents written by governmental entities, technical papers published in peer-reviewed journals, or measurements based on sound geophysical 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.

The Industry Segments are:

- 1 — Transmission Owners
- 2 — RTOs, ISOs
- 3 — Load-serving Entities
- 4 — Transmission-dependent Utilities
- 5 — Electric Generators
- 6 — Electricity Brokers, Aggregators, and Marketers
- 7 — Large Electricity End Users
- 8 — Small Electricity End Users
- 9 — Federal, State, Provincial Regulatory or other Government Entities

- 10 — Regional Reliability Organizations, Regional Entities

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
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
					Wayne Sipperly	New York Power Authority	4	NPCC
					Glen Smith	Entergy Services	4	NPCC
					Brian Robinson	Utility Services	5	NPCC
					Alan Adamson	New York State Reliability Council	7	NPCC
					Edward Bedder	Orange & Rockland Utilities	1	NPCC
					David Burke	Orange & Rockland Utilities	3	NPCC

Michele Tondalo	UI	1	NPCC
Laura Mcleod	NB Power	1	NPCC
David Ramkalawan	Ontario Power Generation Inc.	5	NPCC
Helen Lainis	IESO	2	NPCC
Michael Schiavone	National Grid	1	NPCC
Michael Jones	National Grid	3	NPCC
Michael Forte	Con Ed - Consolidated Edison	1	NPCC
Peter Yost	Con Ed - Consolidated Edison Co. of New York	3	NPCC
Sean Cavote	PSEG	4	NPCC
Kathleen Goodman	ISO-NE	2	NPCC
Quintin Lee	Eversource Energy	1	NPCC
Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1,5	NPCC

					Dermot Smyth	Con Ed - Consolidated Edison Co. of New York	1,5	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
					Caroline Dupuis	Hydro Quebec	1	NPCC
					Chantal Mazza	Hydro Quebec	2	NPCC
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Paul Malozewski	Hydro One Networks, Inc.	3	NPCC

1. The SDT developed a Canadian Variance to Requirement R7 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 Requirement R7 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.

Terry Volkmann - Glencoe Light and Power Commission - 1

Answer No

Document Name

Comment

All utilities have some form of regulatory approval of investments. This variance should be applicable across all of NERC, not just Canada.

Likes 0

Dislikes 0

Response

Thank you for your comment. The scope for this project, as outlined in its SAR, is to address certain concerns of Canadian entities regarding TPL-007-2 through the development of a Canadian Variance. Changes to the continent-wide standard are therefore outside the scope of this project. The variance drafting team suggests that the commenter submit a separate SAR to address this issue in the continent-wide standard.

Laura McLeod - NB Power Corporation - 1,5

Answer Yes

Document Name

Comment

The wording in R7 should be modified slightly such that obtaining regulatory approval is an optional requirement and not mandatory requirement of the standard. An entity should not be held non-compliant if they do not seek regulatory approval prior to implementing a corrective action plan.

Likes 0

Dislikes 0

Response

The objective was to consider the delays and the changes to the corrective action plans that stems from regulatory approvals, where such approvals are required. The Requirement R7 wording was not intended to make regulatory approvals mandatory prior to implementing a Corrective Action Plan (CAP). The draft has been revised for clarity.

Michael Godbout - Hydro-Québec TransÉnergie - 1 - NPCC

Answer Yes

Document Name

Comment

see question 5 for comments and suggestions.

Likes 0

Dislikes 0

Response

Please see the SDT's response to Question 5.

David Ramkalawan - Ontario Power Generation Inc. - 5

Answer Yes

Document Name

Comment

The proposed revision does not account for the case when no approval is provided by the regulator.

Likes 0

Dislikes 0

Response

The objective was to consider the delays and the changes to the CAPs that stems from regulatory approvals, where such approvals are required. The Requirement R7 wording was not intended to make regulatory approvals mandatory prior to implementing a CAP. The draft has been revised for clarity.

Wayne Guttormson - SaskPower - 1

Answer Yes

Document Name

Comment

Likes 0

Dislikes 0

Response

Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - WECC

Answer Yes

Document Name

Comment

Likes 0

Dislikes 0

Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
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	
Likes 0	
Dislikes 0	
Response	
Payam Farahbakhsh - Hydro One Networks, Inc. - 1,3	
Answer	Yes
Document Name	
Comment	

Likes	0
Dislikes	0
Response	

2. Do you agree that the language in the ‘Background’ and ‘General Considerations’ sections 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.

Terry Volkmann - Glencoe Light and Power Commission - 1

Answer	No
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Document Name	
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Comment

This is good section, but if the Canadians find a different methodology that is more accurate it needs to apply to all under TPL-007.

Much of the existing methodology is derived from the Canadian events and data.

So if the Canadian find some thing better it need to apply to more than Canada.

Likes	0
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Dislikes	0
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Response

Thank you for your comment. The scope for this project, as outlined in its SAR, is to address certain concerns of Canadian entities regarding TPL-007-2 through the development of a Canadian Variance. Changes to the continent-wide standard are therefore outside the scope of this project. The variance drafting team suggests that the commenter submit a separate SAR to address this issue in the continent-wide standard.

David Ramkalawan - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
OPG suggest to revise the following statement from Attachment 1-CAN as follow: "Where the information available is insufficient to support an alternative approach, Canadian registered entities shall (instead of "should") use the methodology in Attachment 1."	
Likes 0	
Dislikes 0	
Response	
The SDT has revised the text to clarify the circumstance under which the Attachment 1-CAN methodology may be used.	
Michael Godbout - Hydro-Québec TransÉnergie - 1 - NPCC	
Answer	Yes
Document Name	
Comment	
See question 5 for comments and suggestions.	
Likes 0	
Dislikes 0	
Response	
Thank you for your comment. See response to Question 5.	
Payam Farahbakhsh - Hydro One Networks, Inc. - 1,3	
Answer	Yes
Document Name	

Comment	
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	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Laura McLeod - NB Power Corporation - 1,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Wayne Guttormson - SaskPower - 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 regionally 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.

Terry Volkmann - Glencoe Light and Power Commission - 1

Answer	No
Document Name	
Comment	
<p>If the Canadians find a different methodology that is more accurate it needs to apply to all under TPL-007.</p> <p>Much of the existing methodology is derived from the Canadian events and data.</p> <p>So if the Canadian find some thing better it need to apply to more than Canada.</p>	
Likes 0	
Dislikes 0	
Response	
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Michael Godbout - Hydro-Québec TransÉnergie - 1 - NPCC	

Answer	Yes
Document Name	
Comment	
See question 5 for comments and suggestions.	
Likes 0	
Dislikes 0	
Response	
See the SDT's response to Question 5.	
Wayne Guttormson - SaskPower - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
Laura McLeod - NB Power Corporation - 1,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
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	
Likes	0
Dislikes	0
Response	
Payam Farahbakhsh - Hydro One Networks, Inc. - 1,3	
Answer	Yes
Document Name	
Comment	
Likes	0
Dislikes	0
Response	
David Ramkalawan - Ontario Power Generation Inc. - 5	
Answer	Yes
Document Name	
Comment	
Likes	0
Dislikes	0
Response	

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 may include technical documents written by governmental entities, technical papers published in peer-reviewed journals, or measurements based on sound geophysical 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.

Terry Volkmann - Glencoe Light and Power Commission - 1

Answer

No

Document Name

Comment

Technical papers published in peer-reviewed journals without the publishing review comments do not necessarily represent an industry accepted position. It should state technical papers and review comments published in peer-reviewed journals. Should follow the IEEE paper model.

Likes 0

Dislikes 0

Response

Thank you for your comment. The drafting team believes that a peer-reviewed technical paper gives confidence that the approach is technically sound. A peer reviewed technical paper is not meant to achieve consensus amongst the industry members. The drafting team observes that IEEE does not publish the review comments after verification. Further, a number of reputable journals do not publish review comments.

David Ramkalawan - Ontario Power Generation Inc. - 5

Answer

Yes

Document Name

Comment

Likes	0
Dislikes	0
Response	
Payam Farahbakhsh - Hydro One Networks, Inc. - 1,3	
Answer	Yes
Document Name	
Comment	
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	
Likes	0
Dislikes	0
Response	
Michael Godbout - Hydro-Québec TransÉnergie - 1 - NPCC	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Leonard Kula - Independent Electricity System Operator - 2	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura McLeod - NB Power Corporation - 1,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Maryanne Darling-Reich - Black Hills Corporation - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Wayne Guttormson - SaskPower - 1	
Answer	Yes
Document Name	
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.

Michael Godbout - Hydro-Québec TransÉnergie - 1 - NPCC

Answer

Document Name

[Comments-HQT-RC-TPL-007-2-CAN.docx](#)

Comment

see attached file for comments.

Likes 0

Dislikes 0

Response

1. Including regulatory considerations

Requirement R7 has been modified to address the regulatory concerns.

2. Performance-based

Requirement R4.1 does not limit the study or studies to the on-peak and off-peak, but it requires that at least these two conditions to be studied. Although a performance-based approach would allow entities to identify the conditions under which their System would be the most vulnerable to the GMD event, the scope for this project, as outlined in its SAR, is to address certain concerns of Canadian entities regarding TPL-007-2 through the development of a Canadian Variance. Changes to the continent-wide standard are therefore outside the scope of this project. The variance drafting team suggests that the commenter submit a separate SAR to address this issue in the continent-wide standard.

3. Potential for less stringency in modelling

The SDT contends that the objective of Attachment 1-CAN is to achieve an equivalent level of reliability (1-in-100-year event) as Attachment 1 while using regionally specific data to estimate the GMD event. Any assumptions or data set(s) must be technically justified, as defined in Attachment 1-CAN, including the impact of the sampling rate(s) on the GMD event.

4. Existing guidelines and technical bases

The SDT contends that no changes would be required to the Guidelines and Technical Basis as a consequence of the proposed Canadian Variance and does not intend to produce a white paper at this time.

5. Steady-state vs dynamic studies

While the SDT recognizes the relevancy of the concern, addressing the concern in the continent-wide Requirement(s) is outside the current scope of the SAR.

6. The use of Attachment-1-CAN – all or nothing?

The SDT contends that unless a Canadian entity has sufficient information to use Attachment 1-CAN, it shall use Attachment 1. The SDT has revised the proposed Variance to address the concerns.

7. The use of Attachment-1-CAN – is it a free choice or a constrained choice for the entity?

The SDT contends that unless a Canadian entity has sufficient information to use Attachment 1-CAN, it shall use Attachment 1. The SDT has revised the proposed Variance to address the concerns.

8. Sound studies

The information for calculating geoelectric field “may include”, but is not limited to, “measurements based on sound geophysical principles”. To further clarify the sentence, the SDT modified the sentence as follows: “technical papers published in peer-reviewed journals, and measurements based on sound scientific principles.”

9. Text suggestions

The SDT has revised the proposed Variance to address the concerns.

Payam Farahbakhsh - Hydro One Networks, Inc. - 1,3

Answer

Document Name

Comment

The research and development in this field continues to evolve. More remains to be learned which will result in tool refinements to support more precise analysis and study conclusions. Hence, it should be emphasized that the interpretation of assessment results should account for the maturity of methodologies and software toolset applied.

Likes 0

Dislikes 0

Response

The SDT agrees that entities should take into account the impact of the evolution of research and development (i.e., maturity of the modeling and technology assessments). The proposed Variance has been revised for clarity.

David Ramkalawan - Ontario Power Generation Inc. - 5

Answer

Document Name

Comment

OPG has the following additional comments:

Field readings can be used for validation of the physical modeling assumption (earth transfer function and network modeling) at the first opportunity (i.e. GMD events).

There should be a timeline related to the submission associated with the regulatory approval of the CAP implementation.

Likes 0

Dislikes 0

Response

1.The text was modified to ensure that field readings are used for validation purposes, where possible.

2. The objective was to consider the delays and the changes to the corrective action plans that stems from regulatory approvals, where such approvals are required. The proposed Variance has been revised for clarity in Part 7.3.3.

Additional comment from IESO - The thoughts in the variance would flow more clearly if expressed in a manner similar to the following:
“One particular GMD Vulnerability Assessment approach and a specific data set is specified in Attachment 1. Canadian registered entities have access to additional data sets that enable the development of other approaches to more accurately characterize their planning areas. Such data includes geomagnetic field (from magnetometer measurements), earth conductivity information and GIC measurements. Canadian registered entities should use the approach and data set specified in Attachment 1 unless sufficient information is available to support an alternative approach. Attachment 1-CAN provides the necessary conditions to employ an alternative approach. Assumptions used in an alternate approach to a GMD Vulnerability Assessment must be clearly documented and technically justified. A sensitivity analysis should be provided to identify how assumptions affect results. To facilitate planning studies simplified models should be employed only when they produce more conservative results than more detailed models.”

The SDT has revised the document flow to incorporate this comment along with comments from Ontario Power Generation and Hydro-Quebec TransÉnergie’s). See [TPL-007-3, Attachment 1 CAN](#) (redline).