Comment Report

Project Name:	Project 2019-01 Modifications to TPL-007-3
Comment Period Start Date:	2/25/2019
Comment Period End Date:	3/26/2019
Associated Ballots:	

There were 24 sets of responses, including comments from approximately 67 different people from approximately 51 companies representing 7 of the Industry Segments as shown in the table on the following pages.

Questions

1. Do you agree with the proposed scope as described in the SAR? If you do not agree, or if you agree but have comments or suggestions for the project scope please provide your recommendation and explanation.

2. Provide any additional comments for the Standards Drafting Team to consider, if desired.

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region
BC Hydro and Power Authority	Adrian Andreoiu	1,3,5	WECC	BC Hydro	Hootan Jarollahi	BC Hydro and Power Authority	3	WECC
					Helen Hamilton Harding	BC Hydro and Power Authority	5	WECC
					Adrian Andreoiu	BC Hydro and Power Authority	1	WECC
Electric Reliability Council of Texas, Inc.	Brandon Gleason	2		ISO/RTO Standards Review Committee 2019-01 Modifications to TPL-007-3	Brandon Gleason	Electric Reliability Council of Texas, Inc.	2	Texas RE
					Ali Miremadi	California ISO	2	WECC
					Helen Lainis	IESO	2	NPCC
					Charles Yeung	Southwest Power Pool, Inc. (RTO)	2	MRO
					Gregory Campoli	New York Independent System Operator	2	NPCC
					Terry Bilke	Midcontinent Independent System Operator, Inc.	2	MRO
Duke Energy	Colby Bellville	1,3,5,6	FRCC,RF,SERC	Duke Energy	Doug Hils	Duke Energy	1	RF
					Lee Schuster	Duke Energy	3	FRCC
					Dale Goodwine	Duke Energy	5	SERC
					Greg Cecil	Duke Energy	6	RF
MRO	Dana Klem	1,2,3,4,5,6	MRO	MRO NSRF	Joseph DePoorter	Madison Gas & Electric	3,4,5,6	MRO
					Larry Heckert	Alliant Energy	4	MRO
					Amy Casucelli	Xcel Energy	1,3,5,6	MRO
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Jodi Jensen	Western Area Power	1,6	MRO

						Administration		
					Kayleigh Wilkerson	Lincoln Electric System	1,3,5,6	MRO
					Mahmood Safi	Omaha Public Power District	1,3,5,6	MRO
					Brad Parret	Minnesota Powert	1,5	MRO
					Terry Harbour	MidAmerican Energy Company	1,3	MRO
					Tom Breene	Wisconsin Public Service Corporation	3,5,6	MRO
					Jeremy Voll	Basin Electric Power Cooperative	1	MRO
					Kevin Lyons	Central Iowa Power Cooperative	1	MRO
					Mike Morrow	Midcontinent ISO	2	MRO
ACES Power Marketing	Jodirah Green	1,3,4,5,6	MRO,NA - Not Applicable,RF,SERC,WECC	ACES Standard Collaborations	John Shaver	Arizona Electric Power Cooperative, Inc.	1	WECC
					Bob Solomon	Hoosier Energy Rural Electric Cooperative, Inc.	1	SERC
					Greg Froehling	Rayburn Country Electric Cooperative, Inc.	3,6	Texas RE
					Kevin Lyons	Central Iowa Power Cooperative	1	MRO
					Ginger Mercier	Prairie Power , Inc.	1,3	SERC
					Kagen DelRio	North Carolina Electric Membership Cooperative	3,4,5	SERC
					Ryan Strom	Buckeye	5	RF

						Power, Inc.		
					Tara Lightner	Sunflower Electric Power Cooperative	1	MRO
Eversource Energy	Quintin Lee	1,3		Eversource Group	Sharon Flannery	Eversource Energy	3	NPCC
					Quintin Lee	Eversource Energy	1	NPCC
PSEG - Public Service Electric and Gas Co.	Sean Cavote	1,3	FRCC,NPCC,RF	PSEG REs	Tim Kucey	PSEG - PSEG Fossil LLC	5	NPCC
					Karla Barton	PSEG - PSEG Energy Resources and Trade LLC	6	RF
					Jeffrey Mueller	PSEG - Public Service Electric and Gas Co.	3	RF
					Joseph Smith	PSEG - Public Service Electric and Gas Co.	1	RF
Southwest Power Pool, Inc. (RTO)	Shannon Mickens	2	MRO,SPP RE	SPP Standards Review Group	Shannon Mickens	Southwest Power Pool Inc.	2	MRO
					Louis Guidry	Cleco	1,3,5,6	SERC
					Tara Lightner	Sunflower Electric Power Corporation	1	MRO

1. Do you agree with the proposed scope as described in the SAR? If you do not agree, or if you agree but have comments or suggestions for the project scope please provide your recommendation and explanation.

Thomas Foltz - AEP - 3,5	
Answer	No
Document Name	

Comment

It is our view that the original purpose of the supplemental event is to investigate the impact of local enhancement of the generated electric field from a GMD event on the transmission grid. This requires industry to take a study approach in which the GICs are calculated with the higher, enhanced electric field magnitude of 12 V/km (adjusted for location and ground properties) applied to some smaller defined area while outside of this area the benchmark electric field magnitude of 8 V/km (also adjusted for location and ground properties) is applied. This smaller area is then systematically moved across the system and the calculations are repeated. This is necessary as the phenomenon could occur anywhere on the system. Using this Version 2 methodology, every part of the system is ultimately evaluated with the higher electric field magnitude.

In our view, the supplemental event represents a more extreme scenario. As such, adding a corrective action plan requirement to the supplemental event obviates the need for studying the benchmark event. Rather than pursuing a Corrective Action Plan for the existing Supplemental GMD Vulnerability Assessment, we believe the SDT *should instead pursue only one single GMD Vulnerability Assessment using a reference peak geoelectric field amplitude* not determined soley by non-spatially averaged data. This would be preferable to requiring two GMD Vulnerability Assessments, both having Corrective Action Plans and each having their own unique reference peak geoelectric field amplitude. When the Supplemental GMD Vulnerability Assessment was originally developed and proposed, there was no CAP envisioned for it. Because of this, one could argue the merits of having two unique assessments, as each were different not only in reference peak amplitude, but in obligations as well. What is being suggested in this SAR however, is essentially having two GMD Vulnerability Assessments requiring Corrective Action Plans but with different reference peak geoelectric field amplitudes (one presumably higher than the other). It would be unnecessarily burdensome, as well as illogical, to have essentially the same obligations for both a baseline and supplemental vulnerability assessment. One again, we believe a more prudent path would be for the SDT to determine an agreeable reference peak geoelectric field amplitude for a single GMD Vulnerability Assessment that potentially requires a Corrective Action Plan.

Likes 0	
Dislikes 0	

Response

Joyce Gundry - Public Utility District No. 1 of Chelan County - 1,3,5,6	
Answer	No
Document Name	

Comment

CHPD does not agree with requiring the development and implementation of corrective action plans to mitigate assessed supplemental GMD event vulnerabilities. Entities have only just begun the process of evaluating the benchmark GMD event and developing mitigation measures. The industry is in the preliminary stages of assessing and developing mitigation measures for GMD events and has not had much time to develop engineering-judgement, experience, or expertise in this field. Revising the standard to include CAPs for the supplementary GMD event is not appropriate at this time as the industry is still building a foundation for this type of system event analysis and exploring mitigation measures. Without a sound foundation developed, requiring CAPs for the supplemental GMD event could lead to unnecessary mitigation measures and an immense amount of industry resources spent on a still developing science. CHPD suggests that the benchmark GMD event be fully vetted before moving onto additional scenarios

such as the supplemental event.

CHPD does not agree with replacing the corrective action plan time-extension provision in Requirement R7.4 with a process through which extensions of time are considered on a case-by-case basis. Since R7.4 is for “situations beyond the control of the entity,” it does not matter if the extensions are considered on a case-by-case basis as the entity will not be able to comply with the CAP timeline as the situation was beyond their control. Adding the case-by-case basis would increase the administrative burden to entities while adding very little benefit to the reliability of the BPS.

Likes 0	
Dislikes 0	

Response

Preston Walker - PJM Interconnection, L.L.C. - 2 - SERC,RF

Answer	No
Document Name	

Comment

PJM agrees with simulating and studying the impacts of localized peak geoelectric fields covered under the supplemental GMD event in the GMD Vulnerability Assessment. These efforts help to improve the overall understanding of the impacts to the BES as well as gauge system performance under more severe conditions. However, the supplemental GMD event should be considered as an extreme event and although useful to create situational awareness, it should not mandate design requirements. The situation is analogous to TPL-001-4 extreme (low probability) events where only an evaluation is performed of the possible actions designed to reduce the likelihood or mitigate the consequences of those events. PJM recommends that the Drafting Team not require Corrective Action Plan(s) for the supplemental GMD event.

Likes 0	
Dislikes 0	

Response

Matthew Lewis - Lower Colorado River Authority - 1,5

Answer	No
Document Name	

Comment

NERC TPL-001-4 sets forth requirements for TPs to establish a Corrective Action Plan when the analysis indicates an inability of the System to meet the performance requirements for planning events shown in Table 1. The analysis of an extreme event in Table 1 that results in Cascading caused by the occurrence of extreme events, an evaluation of possible actions designed to reduce the likelihood or mitigate the consequences and adverse impacts of the event(s) shall be conducted, but no Corrective Action Plan is required under an extreme event. Since the supplimental analysis may be considered an extreme event to the benchment assessment, then the CAP would not be required for the supplemental analysis to be consistant with TPL-001-4.

Likes 0	
Dislikes 0	

Response

Leonard Kula - Independent Electricity System Operator - 2

Answer	Yes
Document Name	

Comment

Given that FERC order No. 851 extends the corrective action plan to the supplemental GMD event vulnerabilities, the scope should include adding a variance similar to D.A. 7.3. for the new requirement to cover the CAP timelines/milestones associated with regulatory approvals in Canada, where applicable.

Likes 0	
Dislikes 0	

Response

Quintin Lee - Eversource Energy - 1,3, Group Name Eversource Group

Answer	Yes
Document Name	

Comment

The proposed scope of the SAR is appropriate to address FERC order 851. However, we suggest expanding the scope of the SAR to provide the Standard Drafting Team with the ability to consider making a revision to “Table 1: Steady State Planning GMD Event”. The recommendation is to add an item “d.” to the “Steady State:” criteria: “d. System steady state voltage performance shall be within the criteria established in Requirement R3.”

Likes 0	
Dislikes 0	

Response

Dana Klem - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	Yes
Document Name	

Comment

The NSRF agrees with the proposed scope as described in the Standard. The proposed scope is appropriate to address FERC directives in Order 851.

The NSRF would like to suggest that the SDT consider modifying the standard to include only one Corrective Action Plan for Requirement R7 that will mitigate performance issues identified in the benchmark GMD Vulnerability Assessment (R4) and/or the supplemental GMD Vulnerability Assessment (R8). If an entity identifies vulnerabilities for the benchmark and the supplemental assessment, the NSRF believes that the CAP for the more severe

supplemental assessment will mitigate the vulnerabilities identified in the benchmark assessment.

Likes 0	
Dislikes 0	

Response

John Allen - City Utilities of Springfield, Missouri - 1,3,4

Answer	Yes
Document Name	

Comment

City Utilities supports comments from the MRO NSRF.

Likes 0	
Dislikes 0	

Response

Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC

Answer	Yes
Document Name	

Comment

BPA fully supports efforts already in flight to refine the earth resistance modeling and modification to software study tools to produce results that more closely represent real-life GIC conditions. These refinements are expected to obtain computation of locally varying electric field magnitude and direction for use in computing GIC flow in a modeled transmission network, such that, calculated GIC flow more closely represents actual flows during a GMD event. BPA is aware of work being done by vendors of commercially available study software, and geophysics researchers, to refine GIC modeling in alignment with the present level of understanding of the physics involved. The path they are on is clearly heading towards obtaining more refined computation capabilities, within the study tools we use for GIC analysis work, where small area localized conditions are included.

BPA's concern is that this capability does not presently exist within the study tools, and as such, study work would be using widely varying assumptions. BPA believes this variability will increase the likelihood of results that are not representative of actual GIC flow and increase the risk of developing corrective actions that are not beneficial or make matters worse. Worse in that, an action may actually put the system in a less stable state after the action when compared to riding through the event without taking an action that is actually unnecessary. BPA believes that this Reliability Standard (TPL-007) should not request study work beyond the capacities of the study tools until those tools are made capable of producing refined studies requested by the FERC order No. 851.

Likes 0	
Dislikes 0	

Response

Richard Vine - California ISO - 2	
Answer	Yes
Document Name	
Comment	
The California ISO supports the comments of the ISO/RTO Council Standards Review Committee (SRC)	
Likes 0	
Dislikes 0	
Response	
Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,SERC,RF, Group Name ACES Standard Collaborations	
Answer	Yes
Document Name	
Comment	
To replace the Corrective Action Plan time-extension provision in Requirement R7.4 with a process through, which extensions of time are considered on a case-by-case basis please consider the following: (1) A clear criteria for approval and disapproval of the extension of time. (2) An appeal process for revisiting timetables that are not agreed upon by the Responsible Entity and the Regional Entity. (3) Clearly identifying what supporting documentation is acceptable in the new process. Another item for consideration is to attach a guideline to the standard that addresses the following questions: (1) How will the reviews be scheduled and address who are the participants and their role in the new process? (2) What means will this review be conducted (conference call or in-person) (3) Does the review team have time parameters they will enforce? (4) Will there be circumstances that would be able to by-pass the review and provide a standard extention time that if there are circumstances outside of those, then the case review be concluded?	
Likes 0	
Dislikes 0	
Response	

Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - MRO, Group Name SPP Standards Review Group	
Answer	Yes
Document Name	
Comment	

The SPP Standards Review Group (SSRG) supports the proposed scope as described in the SAR.

The SSRG recommends the Standards Drafting Team (SDT) consider the potential of redundancy in the development of two Correction Action Plans (CAPs).

The SSRG reviewed Paragraph 2, from Attachment 1, Calculating Geoelectric Fields for the Benchmark and Supplemental GMD Events. The SSRG recommends that the SDT consider that one CAP could cover both studies.

"*The supplemental GMD event is composed of similar elements as described above (Benchmark), except (1) the reference peak geoelectric field amplitude is 12 V/km over a localized area; and (2) the geomagnetic field time series or waveform includes a local enhancement in the waveform2.*

Likes 0	
Dislikes 0	
Response	

Sean Cavote - PSEG - Public Service Electric and Gas Co. - 1,3, Group Name PSEG REs	
Answer	Yes
Document Name	
Comment	

The proposed scope of the SAR is appropriate to address FERC order 851. However, we suggest expanding the scope of the SAR to provide the Standard Drafting Team with the ability to consider making a revision to "Table 1: Steady State Planning GMD Event." The recommendation is to add an item "d." to the "Steady State:" criteria: "d. System steady state voltage performance shall be within the criteria established in Requirement R3."

Likes 0	
Dislikes 0	
Response	

Brandon Gleason - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Standards Review Committee 2019-01 Modifications to TPL-007-3	
Answer	Yes
Document Name	
Comment	

ISO/RTO Standards Review Committee ("SRC") members CAISO, ERCOT, IESO, MISO, NYISO, and SPP agree that the scope of the SAR aligns with

the directives of FERC in Order No. 851.	
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	
faranak sarbaz - Los Angeles Department of Water and Power - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Eric Shaw - Oncor Electric Delivery - 1 - Texas RE	
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	
Anton Vu - Los Angeles Department of Water and Power - 1,3,5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Richard Jackson - U.S. Bureau of Reclamation - 1,5	
Answer	Yes
Document Name	
Comment	

Likes 0	
Dislikes 0	
Response	
Rachel Coyne - Texas Reliability Entity, Inc. - 10	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RF, Group Name Duke Energy	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Adrian Andreoiu - BC Hydro and Power Authority - 1,3,5, Group Name BC Hydro	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

2. Provide any additional comments for the Standrds Drafting Team to consider, if desired.

Brandon Gleason - Electric Reliability Council of Texas, Inc. - 2, Group Name ISO/RTO Standards Review Committee 2019-01 Modifications to TPL-007-3

Answer	
Document Name	

Comment

None.

Likes 0	
Dislikes 0	

Response

Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - MRO, Group Name SPP Standards Review Group

Answer	
Document Name	

Comment

The SSRG recommends the SDT consider developing a non-exclusive list of extension examples.

Likes 0	
Dislikes 0	

Response

Jodirah Green - ACES Power Marketing - 1,3,4,5,6 - MRO,WECC,SERC,RF, Group Name ACES Standard Collaborations

Answer	
Document Name	

Comment

It is stated in the SAR that “The potential cost impacts associated with adding corrective action plan requirements for supplemental GMD event vulnerabilities are unknown at this time.”

Cost Impacts are an important aspect to be studied. Considerations of estimated time-extensions cost impacts and company budget cycles is requested to be measured in the time-extension decisions.

Thank you for the opportunity to comment.

Likes 0	
Dislikes 0	

Response

Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC

Answer	
Document Name	

Comment

None

Likes 0	
Dislikes 0	

Response

Richard Jackson - U.S. Bureau of Reclamation - 1,5

Answer	
Document Name	

Comment

Reclamation recommends the standards authorization request process include input from FERC so as to thoroughly scope each standard to ensure it includes all of FERC's desired content prior to it being submitted for FERC approval. This would help eliminate the potential for changes to new standards being ordered simultaneously with the approval of the same standard. Reclamation also recommends FERC provide ample time for NERC to develop standards to avoid the problem of improperly scoped standards being quickly thrown together simply to meet short deadlines.

Likes 0	
Dislikes 0	

Response

John Allen - City Utilities of Springfield, Missouri - 1,3,4

Answer	
Document Name	

Comment

City Utilities supports comments from the MRO NSRF.

Likes 0	
Dislikes 0	

Response

Dana Klem - MRO - 1,2,3,4,5,6 - MRO, Group Name MRO NSRF

Answer	
Document Name	

Comment

The NSRF suggest expanding the scope of the SAR to provide the SDT with the ability to consider removing or revising requirement R11 and R12. The requirements to have a process to collect GMD data is not necessary in TPL-007 because that data will not be used in the Planning Analysis. Furthermore, the GMD data is not needed to complete the benchmark or supplemental vulnerability assessments.

As an example, see the MISO TPL-007-2 flowchart below. The monitoring requirements are outside the requirement flowchart for Planning Analysis and vulnerability assessment. If this data is needed for GMD research, I believed these requirements are covered by the Section 1600 data request.

Likes 0	
Dislikes 0	

Response

Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5

Answer	
Document Name	

Comment

Nothing further

Likes 0	
Dislikes 0	

Response

faranak sarbaz - Los Angeles Department of Water and Power - 1,3,5,6

Answer	
Document Name	

Comment

it would be beneficial to develop a guideline with as much as details as possible for entities to follow.

Likes 0	
Dislikes 0	

Response