NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Unofficial Comment Form

Project 2019-01 Modifications to TPL-007-3

Do not use this form for submitting comments. Use the Standards Balloting and Commenting System (SBS) to submit comments on **TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events**. Comments must be submitted by **8 p.m. Eastern, Monday, September 9, 2019.**

Additional information is available on the project page. If you have questions, contact Senior Standards Developer, Alison Oswald (via email), or at 404-446-9668.

Background Information

The first version of the standard, TPL-007-1, requires entities to assess the impact to their systems from a defined event referred to as the "Benchmark GMD Event." The second version of the standard, TPL-007-2, adds new Requirements R8, R9, and R10 to require responsible entities to assess the potential implications of a "Supplemental GMD Event" on their equipment and systems in accordance with the FERC's directives in Order No. 830. The third version of the standard, TPL-007-3, adds a Canadian variance for Canadian Registered Entities to leverage operating experience, observed GMD effects, and on-going research efforts for defining alternative Benchmark GMD Events and/or Supplemental GMD Events that appropriately reflect their specific geographical and geological characteristics. No continent-wide requirements were changed between the second and the third versions of the standard. This project will address the directives issued by FERC in Order No. 851 to modify Reliability Standard TPL-007-3. FERC directed NERC to submit modifications to: (1) require the development and implementation of corrective action plans to mitigate assessed supplemental GMD event vulnerabilities (P 29); and (2) to replace the corrective action plan time-extension provision in TPL-007-3 Requirement R7.4 with a process through which extensions of time are considered on a case-by-case basis (P 54).

Questions

1. The SDT approach was to modify Requirement R7.4 to meet the directive in Order 851 to require prior approval of extension requests for completing corrective action plan tasks. Do you agree that R7 meets the directive? If you disagree please explain and provide alternative language and rationale for how it meets the directive of the order.

   ☐ Yes
   ☐ No

   Comments:

2. The SDT approach was to add Requirement R11 to meet the directive in Order No. 851 to "require corrective action plans for assessed supplemental GMD event vulnerabilities." R7 and R11 are the same language applied to the benchmark and supplemental events respectively. Do you agree that R11 meets the directive? If you disagree please explain and provide alternative language and rationale for how it meets the directive of the order.

☐ Yes
☒ No

Comments:
While some aspects of R11 may indeed meet the directives as ***literally*** stated in Order No. 851, we do not believe it is a prudent way to meet the ***spirit*** of those directives. We believe R11 is unnecessarily duplicative of the obligations already required for the benchmark event, and disagree with its inclusion. In addition, the obligation to "specify implementation" of mitigation may not be consistently interpreted among entities, and as a result, may not meet the directives for reasons we will provide in this response.

It is our view that the original purpose of the supplemental event was 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 an 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. Referring to Attachment 1 of the proposed standard, the section titled '**Applying the Localized Peak Geoelectric Field in the Supplemental GMD Event**' provides examples of applying the localized peak geoelectric field over the planning area. The first example presented is applying the peak geoelectric field (12 V/km scaled to planning area) over the entire planning area. This example is a more severe condition than the benchmark event, and should alleviate the need to study the benchmark event if used. In addition, modeling tools for conducting GMD vulnerability studies for the supplemental event using the moving box method have not yet been developed. 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 solely 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 has now been proposed in this revision 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. In addition to its duplicative nature, it is possible that the results from a benchmark study may even differ or conflict with the results from a given supplemental study.

While the NOPR directs the standard to be revised to incorporate the "development and completion of corrective action plans to mitigate assessed supplemental GMD event vulnerabilities", we find rather that R11 requires the entity "specify implementation" of mitigation. This could be interpreted by some as simply specifying what actions are to be taken but without explicit bounds or expectations on when the final execution of that implementation (i.e. "completion") would take place.

Once again, we believe a more prudent path for meeting the directive would be for the SDT to work with industry and determine an agreeable reference peak geoelectric field amplitude for a single GMD Vulnerability Assessment (benchmark), one not determined solely by non-spatially averaged data, and that potentially requires a Corrective Action Plan. This would serve to both achieve the spirit of the directive, as well as avoid unnecessary duplication of efforts that provide no added benefit to the reliability of the BES.

3. Do you agree that the Canadian variance is written in a way that accommodates the regulatory processes in Canada? If you disagree please explain and provide alternative language and rationale for how it meets the directive of the order while accommodating Canadian regulatory processes.

   ☐ Yes
   ☐ No

   Comments:

4. Do you agree that the standard language changes in Requirement R7, R8, and R11 proposed by the SDT adequately address the directives in FERC Order No. 851? If you disagree please explain and provide alternative language and rationale for how it meets the directive of the order.

   ☐ Yes
   ☐ No

   Comments:

5. Do you have any comments on the modified VRF/VSL for Requirements R7, R8, and R11?
   ☐ Yes
   ☐ No

   Comments:

6. Do you agree with the proposed Implementation Plan? If you think an alternate, shorter or longer implementation time period is needed, please propose an alternate implementation plan and time period, and provide a detailed explanation of actions planned to meet the implementation deadline.

   ☐ Yes
   ☐ No

   Comments:

7. The SDT proposes that the modifications in TPL-007-4 meet the FERC directives in a cost effective manner. Do you agree? If you do not agree, or if you agree but have suggestions for improvement to enable more cost effective approaches, please provide your recommendation and, if appropriate, technical or procedural justification.

   ☐ Yes
   ☒ No

   Comments:
   TPL-007-4, in contrast to the majority of standards established by NERC, GMD Vulnerability Assessments are not representative of an existing utility practice. This is highlighted by the fact that there is a deficit of modeling tools available that would enable an entity to comply with the requirements specified herein. The burden of expenses relative to CAPs has yet to be established because there are very few examples of vulnerability assessments that have been completed for either the benchmark or the supplemental GMD events. In essence, the science to prudently study and assess system vulnerabilities related to a High Impact, Low Frequency (HILF) event on the system is not conclusive and still subjective. In short, the obligations have come before the development of proven modeling tools and mitigation techniques. Once again, AEP believes that R11 is unnecessarily duplicative of the obligations already required for the benchmark event, and as such, we do not believe it to be cost effective. Those resources would be better served for efforts having a discernable, positive impact on the reliability of the BES. Rather than pursuing this course, we believe a more prudent path, as well as a more cost effective path, would be as we propose in our response to Q1.

8. Provide any additional comments for the standard drafting team to consider, if desired.

   Comments:
   As previously stated, many of the obligations within TPL-007, both existing and proposed, precede industries' full understanding of GMD and its true, discernable impacts. This proves challenging when attempting to develop standards to adequately address the perceived risks.

   We support, and are appreciative of, the efforts of the standards drafting team and their desire to address the directives issued in Order No. 851, however we believe the spirit of those directives

can be met without pursuing a path that duplicates obligations already required for the benchmark event. We believe a more prudent path for meeting the directive would be for the SDT to work with industry and determine an agreeable reference peak geoelectric field amplitude (one not determined solely by non-spatially averaged data) for a single GMD Vulnerability Assessment (benchmark) that potentially requires a Corrective Action Plan. This would serve to both achieve the spirit of the directive, as well as avoid unnecessary duplication of efforts that provide no added benefit to the reliability of the BES. Due to the concerns we have expressed above, AEP has chosen to vote negative on the proposed revisions.