Comment Report

Project Name:	2013-03 Geomagnetic Disturbance Mitigation SAR
Comment Period Start Date:	12/16/2016
Comment Period End Date:	1/20/2017
Associated Ballots:	

There were 21 sets of responses, including comments from approximately 21 different people from approximately 19 companies representing 8 of the Industry Segments as shown in the table on the following pages.

Questions

1. Do you agree with the proposed scope for Project 2013-03 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 (SDT) 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
ACES Power Marketing	Brian Van Gheem	6	NA - Not Applicable	ACES Standards Collaborators	Bob Solomon	Hoosier Energy Rural Electric Cooperative, Inc.	1	RF
					Karl Kohlrus	Prairie Power, Inc.	1,3	SERC
					Shari Heino	Brazos Electric Power Cooperative, Inc.	1,5	Texas RE
					Tara Lightner	Sunflower Electric Power Corporation	1	SPP RE
					Mark Ringhausen	Old Dominion Electric Cooperative	3,4	SERC
					John Shaver	Arizona Electric Power Cooperative, Inc.	1	WECC
					Bill Hutchison	Southern Illinois Power Cooperative	1	SERC
					Scott Brame	North Carolina Electric Membership Corporation	3,4,5	SERC
					Bill Hutchison	Southern Illinois Power Cooperative	1,4	RF
					Bill Hutchison	Southern Illinois Power Cooperative	1,4	RF
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
Seattle City Light	Ginette Lacasse	1,3,4,5,6	WECC	Seattle City Light Ballot	Pawel Krupa	Seattle City Light	1	WECC

				Body	Hao Li	Seattle City Light	4	WECC
					Bud (Charles) Freeman	Seattle City Light	6	WECC
					Mike Haynes	Seattle City Light	5	WECC
					Michael Watkins	Seattle City Light	1,4	WECC
					Faz Kasraie	Seattle City Light	5	WECC
					John Clark	Seattle City Light	6	WECC
					Tuan Tran	Seattle City Light	3	WECC
					Laurrie Hammack	Seattle City Light	3	WECC
Southern Company - Southern Company Services, Inc.	Marsha Morgan	1,3,5,6	SERC	Southern Company	Katherine Prewitt	Southern Company Services, Inc	1	SERC
					Jennifer Sykes	Southern Company Generation and Energy Marketing	6	SERC
					R Scott Moore	Alabama Power Company	3	SERC
					William Shultz	Southern Company Generation	5	SERC
Lower Colorado River Authority	Michael Shaw	1,5,6		LCRA Compliance	Teresa Cantwell	LCRA	1	Texas RE
					Dixie Wells	LCRA	5	Texas RE
					Michael Shaw	LCRA	6	Texas RE
Northeast Power Coordinating Council	Ruida Shu	1,2,3,4,5,6,7,10	NPCC	RSC no Dominion and OPG	Paul Malozewski	Hydro One.	1	NPCC
					Guy Zito	Northeast Power Coordinating Council	NA - Not Applicable	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
					Bruce Metruck	New York Power Authority	6	NPCC
					Alan Adamson	New York State Reliability Council	7	NPCC
					Edward Bedder	Orange & Rockland Utilities	1	NPCC
					David Burke	UI	3	NPCC
					Michele Tondalo	UI	1	NPCC
					Sylvain Clermont	Hydro Quebec	1	NPCC
					Si Truc Phan	Hydro Quebec	2	NPCC
					Helen Lainis	IESO	2	NPCC
					Laura Mcleod	NB Power	1	NPCC
					MIchael Forte	Con Edison	1	NPCC
					Quintin Lee	Eversource Energy	1	NPCC
					Kelly Silver	Con Edison	3	NPCC
					Peter Yost	Con Edison	4	NPCC
					Brian O'Boyle	Con Edison	5	NPCC
					Greg Campoli	NY-ISO	2	NPCC
					Kathleen Goodman	ISO-NE	2	NPCC
					Silvia Parada Mitchell	NextEra Energy, LLC	4	NPCC
					Michael Schiavone	National Grid	1	NPCC
					Michael Jones	National Grid	3	NPCC
Midwest Reliability Organization	Russel Mountjoy	10		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
					Chuck Lawrence	American Transmission	1	MRO

						Company		
					Michael Brytowski	Great River Energy	1,3,5,6	MRO
					Jodi Jensen	Western Area Power Administratino	1,6	MRO
					Kayleigh Wilkerson	Lincoln Electric System	1,3,5,6	MRO
					Mahmood Safi	Omaha Public Power District	1,3,5,6	MRO
					Brad Parret	Minnesota Power	1,5	MRO
					Terry Harbour	MidAmerican Energy Company	1,3	MRO
					Tom Breene	Wisconsin Public Service	3,5,6	MRO
					Jeremy Volls	Basin Electric Power Coop	1	MRO
					Kevin Lyons	Central Iowa Power Cooperative	1	MRO
					Mike Morrow	Midcontinent Independent System Operator	2	MRO
Southwest Power Pool, Inc. (RTO)	Shannon Mickens	2	SPP RE	SPP Standards Review Group	Shannon Mickens	Southwest Power Pool Inc.	2	SPP RE
					James Nail	Independence Power and Light	3	SPP RE
					Allan George	Sunflower Electric Power Corp	1	SPP RE
					Jonathan Hayes	Southwest Power Pool Inc.	2	SPP RE

1. Do you agree with the proposed scope for Project 2013-03 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.

David Jendras - Ameren - Ameren Services - 1,3,6

Answer	No
Document Name	

Comment

The proposed revision to standard TPL-007-1 to address localized peaks in GMD events and not rely solely on the spatially-averaged data has the potential to impact much more of the transmission system and many more EHV Y-connected transformers than we had previously estimated. It is unknown at this time how the SDT will modify the standard to include this FERC mandated revision, but this would be a major concern for TOs.

It appears that Ameren as a TO will be required to install GIC monitoring equipment and magnetometers, collect data from these devices, and make the data available to those that have a need for the information. Details are still to be determined by the SDT, with the cost to install such equipment and maintain data is unknown.

Although the FERC directive allows for TOs to apply for an exemption to collect necessary GIC monitoring data, exemption criteria has not been proposed to determine if the exemption would or would not be allowed in a particular case. Regardless, because of our location in the Midwest and because of the number of 345 kV lines and EHV Y-connected transformers connected to the Ameren system, it is unlikely that Ameren would be allowed an exemption from installing monitoring equipment and collecting the GIC data, regardless of our southerly location in relation to the geomagnetic north pole.

Due to the fact that FERC is mandating these modifications, we are concerned that input from industry on the drafting of the revised standard would be given minimal consideration.

Likes 0	
Dislikes 0	

Response

Russel Mountjoy - Midwest Reliability Organization - 10, Group Name MRO NSRF

Answer	Yes
Document Name	

Comment

The NSRF agrees with the proposed scope for Project 2013-03 SAR but would like to make several suggestions that will benefit the reliable operation of the BES. If the standard drafting team plans to incorporate real-time reliability monitoring and analysis to satisfy the GMD monitoring requirements, we

suggest the SDT add Transmission Operator (TOP) as an applicable Reliability Function in the SAR.

Rationale

FERC gives NERC the option to incorporate the GMD monitoring data collection in another reliability standard. The TOP is the responsible entity to complete real-time reliability monitoring.

"NERC may also propose to incorporate the GIC monitoring and magnetometer data collection requirements in a different Reliability Standard (e.g., real-time reliability monitoring and analysis capabilities as part of the TOP Reliability Standards)." (FERC Order 830, P.91) .

Likes 0	
Dislikes 0	

Response

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

Answer	Yes
Document Name	

Comment

BPA would like to know if the model validation encompasses equipment and system models for accurate GIC current determination (like transformer behavior). BPA would also like to know if the model validation encompass hysteresis curves for VAR consumption determination? BPA believes the model should contain both.

Likes 0	
Dislikes 0	

Response

Ginette Lacasse - Seattle City Light - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer	Yes
Document Name	

Comment

Our subject matter experts do not believe that collected data should be available to the public. Or clearly define what is meant by "publicly available" and what specifically can be available.

Likes 0	
Dislikes 0	

Response

Brian Van Gheem - ACES Power Marketing - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators

Answer	Yes
Document Name	

Comment

(1) We believe the proposed scope captures the directives identified in FERC Order No. 830. However, we believe several references to the FERC Order are taken out of context, and should be removed from the SAR's Detailed Description Section. The Commission wants GIC monitoring and magnetometer data to be gathered through collaboration with academia and government agencies. The reference to include "…any device that must be added…"could misdirect the SDT from the Commission's intentions. We recommend the removal of this particular reference to limit the scope of data collection.

(2) We feel the FERC directive references should be mapped to existing requirements to identify proposed changes. For example, we recommend adding a reference to Requirement R3 when listing the directives associated with Benchmark Events. Likewise, when listing directives for Transformer Thermal Impact Assessment or Corrective Action Plans, Requirement R6 and Requirement R7 should be included as references, respectively.

(3) We question the addition of a reference to move the data collection of GIC monitoring and magnetometer data to a different Reliability Standard. We feel this inclusion opens the door to a Commission suggestion to incorporate data collection as part of real-time reliability monitoring and analysis and relocated to the TOP Reliability Standards. We feel that if such data was required for real-time operations, it likely would have been incorporated in NERC Reliability Standard EOP-010-1, as part of emergency Geomagnetic Disturbance Operations. We recommend the removal of this reference to focus the scope of this project on TPL-007.

(4) The SAR briefly lists the development of an implementation plan, although does not elaborate on what may change within the SAR's Detailed Description Section. While the current five year implementation plan takes effect starting July 2017, we feel a significant portion of the implementation plan will pass by the time the Commission approves the work of this SDT. We recommend the addition of a reference within the SAR's Detailed Description Section to incorporate modifications to the implementation plan that accounts for the transition away from the current implementation plane. We believe the transition period should not be less than 18 months to accommodate an impacted entity's effort to implement modeling and software changes, additional resource procurements, and quality assurance of assessments.

Likes 0	
Dislikes 0	

Response

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

Answer	Yes
Document Name	

Comment

NPCC RSC support the proposed scope for Project 2013-03.

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	
Jeffrey DePriest - DTE Energy - Detroit Edison Company - 3,4,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Tho Tran - Oncor Electric Delivery - 1 - Texas RE	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Sean Bodkin - Dominion - Dominion Resources, Inc. - 3,5,6	
Answer	Yes
Document Name	

Comment	
Likes 0	
Dislikes 0	
Response	
RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 - SERC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Thomas Foltz - AEP - 3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laura Nelson - IDACORP - Idaho Power Company - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

John Merrell - Tacoma Public Utilities (Tacoma, WA) - 1,3,4,5,6	
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	
Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP RE, Group Name SPP Standards Review Group	
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	
Teresa Cantwell - Lower Colorado River Authority - 1,5,6	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Michael Shaw - Lower Colorado River Authority - 1,5,6, Group Name LCRA Compliance	
Answer	
Document Name	2013-03_GMD_SAR_Unofficial_Comment_Form_121516.docx
Comment	
Likes 0	
Dislikes 0	
Response	

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

Brian Van Gheem - ACES Power Marketing - 6 - NA - Not Applicable, Group Name ACES Standards Collaborators

Answer	
Document Name	

Comment

(1) We believe the SDT should collaborate its activities with existing industry technical groups, including the NERC Geomagnetic Disturbance Task Force, when designing GIC monitoring and magnetometer data collection criteria. We propose limiting the focus of this SAR to GIC monitoring and magnetometer data collection, and allow NERC and these other groups to address how such data will be shared publicly. We fear the SDT's involvement with the distribution of data could lead to unnecessarydevelopment of new Reliability Standards for currently unregistered entities and functions.

(2) We thank you for this opportunity to provide these comments.

Likes 0	
Dislikes 0	

Response

Teresa Cantwell - Lower Colorado River Authority - 1,5,6

Answer	
Document Name	

Comment

The approach related to the GMD benchmark definition and transformer thermal impact assessment needs to balance ease of implementation with the quality of results.

A methodology similar to that employed in PRC-002 should be utilized to limit the required number of installations of monitoring data (e.g. based on short circuit MVA or some other parameter). Not every TO should be required to install monitoring data. This may be better accomplished by rolling the monitoring requirement into another standard (e.g. PRC-002).

NERC should consider extensions of time for CAPs and/or hardware installation on a case-by-case basis.

Likes 0	
Dislikes 0	

Response

Rachel Coyne - Texas Reliability Entity, Inc. - 10

Answer	

Document Name	

Comment

Texas RE made the following observations:

- Paragraph 91 in Order No. 830 discusses the ability for a Transmission Owner to apply for an exemption. Texas RE is concerned if the responsible entity determined in R1 is allowed to grant exemptions, many entities that are registered as a TP and TO will be able to grant itself an exemption. Texas RE recommends determining who is responsible for granting exemptions, since Order No. 830 does not specify.
- The “Industry Need” section includes details about NERC making GMD-related data publicly available, but “Detailed Description” section does not.
- In the “Collection of GMD Data” section, the SAR states that “Each responsible entity that is a transmission owner should be required to collect necessary GIC monitoring data.” However, TPL-007-1 R1 currently defines a “responsible entity” as either a TP or a PC. When updating the Standard, the SDT should avoid using “responsible entity” when referencing a TO.
- Texas RE recommends emphasizing sufficient and appropriate compliance documentation, regarding an “equally efficient and effective alternative”. An entity would be required to demonstrate efficiency and effectiveness. For the data submittal portion, there needs to be care in addressing timing as the directive included historical and new data. There is no discussion of data requirements, per se, and the content, format, or timing associated with the data.

Likes 0	
Dislikes 0	

Response

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

Answer	
Document Name	

Comment

After reviewing the transcript associated with the Level 2 Appeal of Foundation For Resilient Societies, INC. in reference to TPL-007-1, we suggest the drafting team review and use this document as guidance throughout their modification process to the Standard. In our review, we found some similarities of concerns shared by both **The Foundation** f**or Resilient Societies, INC** and **FERC Order 830** such as, transformer thermal impact assessments as well as data collection and how that information would be made publicly available**.**

Likes 0	
Dislikes 0	

Response

Ginette Lacasse - Seattle City Light - 1,3,4,5,6 - WECC, Group Name Seattle City Light Ballot Body

Answer	
Document Name	

Comment
Thank you for seeking our input in advance.

Likes 0	
Dislikes 0	

Response

Marsha Morgan - Southern Company - Southern Company Services, Inc. - 1,3,5,6 - SERC, Group Name Southern Company

Answer	
Document Name	

Comment
Because commercially available models and tools do not currently exist for performing transformer thermal impact assessments, we ask the SDT to continue considering suitable alternates (e.g., look up tables, development of flowcharts or processes). Also, we ask the SDT to provide clarification of the event included in Table 1 - Steady State Planning Events. In particular, with regards to protection system misoperation due to harmonics during a GMD event, please provide clarification as to what is expected. Will this require that large scale harmonic penetration studies be performed in order to analyze potential impact of half-cycle saturation generated harmonics on system protection and/or equipment controls? Or will engineering assessments that identify credible scenarios be sufficient? SDT to consider that the procurement and installation of instrument transformers for the collection of GIC monitoring and magnetometer data takes months to implement. SDT to consider realistic timelines for implementation, as well as providing technical guidance for implementation of GIC measurement devices. We ask the SDT to provide additional clarification on R2. In particular, SDT to elaborate on "maintaining System models and GIC System Models." Is R2 referring to gathering and maintaining dc and ac models (e.g., substation dc resitances, dc network data) of the system under study? Does it require having to complete a GIC analysis by R2 deadline, so that GIC system models can be produced and maintained? Please provide clarification.

Likes 0	
Dislikes 0	

Response

David Jendras - Ameren - Ameren Services - 1,3,6

Answer	
Document Name	

Comment
The change in deadlines for mitigation of GMD events would not be a concern in Ameren's case. Ameren is not interested in installing blocking devices to Y-connected EHV transformers. Therefore, operational solutions will provide the likely mitigations.

Likes 0	
Dislikes 0	

Response

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

Answer	
Document Name	

Comment

BPA would like to know how the Standard Drafting Team envisions collecting the data to perform the studies. If there is no regional data collection effort similar to MOD-032, then how is it envisioned that accurate GIC studies to determine DC currents will be run? BPA believes a documented process needs to be created WECC wide (or nationally). BPA envisions the data collection included with MOD-032 to be collected every 5 years (or according to study schedule with version 2 of TPL-007). BPA's experience is that most entities are not willing to take on extra work if they do not have to.

Likes 0	
Dislikes 0	

Response

Russel Mountjoy - Midwest Reliability Organization - 10, Group Name MRO NSRF

Answer	
Document Name	

Comment

None

Likes 0	
Dislikes 0	

Response

Sandra Shaffer - Berkshire Hathaway - PacifiCorp - 6

Answer	
Document Name	

Comment

PacifiCorp supports the proposal to incorporate the GIC monitoring and magnetometer data collection requirements in a different Reliability Standard.

This separation would allow more attention to the specific upgrades already outlined in the SAR.	
Likes 0	
Dislikes 0	
Response	
Jeffrey DePriest - DTE Energy - Detroit Edison Company - 3,4,5	
Answer	
Document Name	
Comment	
Please consider an approach where GIC monitor locations are determined on a regional basis in order to obtain the most value from each installation and insure that all areas are covered appropriately. An individual GO/TO may not have the information needed to properly place equipment. Also, providing monitoring equipment specifications would insure that manufacturers would design, and entities would install, capable monitors that will provide reliable data.	
Likes 0	
Dislikes 0	
Response	
Karie Barczak - DTE Energy - Detroit Edison Company - 3,4,5	
Answer	
Document Name	
Comment	
Please consider an approach where GIC monitor locations are determined on a regional basis in order to obtain the most value from each installation and insure that all areas are covered appropriately. An individual GO/TO may not have the information needed to properly place equipment. Also, providing monitoring equipment specifications would insure that manufacturers would design, and entities would install, capable monitors that will provide reliable data.	
Likes 0	
Dislikes 0	
Response	
Michael Shaw - Lower Colorado River Authority - 1,5,6, Group Name LCRA Compliance	
Answer	
Document Name	2013-03_GMD_SAR_Unofficial_Comment_Form_121516.docx

Comment	
Likes 0	
Dislikes 0	
Response	