

Meeting Notes Project 2013-03 (Geomagnetic Disturbance) Standard Drafting Team

January 21, 2014 | 1:00 p.m. – 5:00 p.m. ET

January 22, 2014 | 8:30 a.m. – 5:00 p.m. ET

January 23, 2014 | 8:30 a.m. – 5:00 p.m. ET

NextEra
Florida Power and Light
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Remote participants:

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Administrative

1. Introductions

The chair called the meeting to order at 1:00 p.m. EST, January 21, 2014. Participants were:

Members			
Name	Company	Name	Company
Frank Koza, Chair	PJM Interconnection	Randy Horton, Vice Chair	Southern Company
Donald Atkinson	Georgia Transmission Corporation	Emanuel Bernabeu	Dominion Resource Services, Inc
Kenneth Fleischer	NextEra Energy	Luis Marti	Hydro One Networks
Qun Qiu	American Electric Power	Antti Pulkkinen	NASA GSFC
Mark Olson	Standards Developer		

Observers			
Name	Company	Name	Company
Paul McCurley	NRECA	Regis Binder	FERC
Bill Harm	PJM Interconnection	Stacey Tyrewala	NERC
Mary Agnes Nimis (Remote)	FERC	Noha Abdel-Karim	NERC
Brian Murphy (Jan 22-23)	NextEra	Mario Kiresich	SCE
Ran Xu	BPA	Kevin Clark (Remote, Jan 21-2)	ISO-NE
Yan Du (Remote)	Mid-American Trans	Luis Leon (Remote)	Otter Tail Power Co

2. Determination of Quorum

The rule for NERC Standard Drafting Team (SDT or team) states that a quorum requires two-thirds of the voting members of the SDT. Quorum was achieved as 8 of 8 total members were present.

3. NERC Antitrust Compliance Guidelines and Public Announcement

NERC Antitrust Compliance Guidelines and public announcement were reviewed by Mark Olson. There were no questions raised. Participant conduct policy was reviewed.

4. Administrative and Safety

Building evacuation plan, emergency procedures, and office layout were reviewed by Ken Fleischer.

Agenda

- 1. Chair Introductory Remarks.** Frank Koza welcomed the drafting team and observers. He reviewed the agenda. Chair led a discussion on a general approach to the stage 2 standard.
- 2. Benchmark GMD Event** - An initial draft of the benchmark GMD event whitepaper was presented by Luis Marti, Randy Horton, and Antti Pulkkinen. Antti Pulkkinen described the technique of data analysis that was used and included in the appendix. The team discussed storm probabilities and impact from a voltage stability and thermal heating perspective. The team discussed the technique for scaling the reference storm to account for geomagnetic latitude and earth conductivity as described in the whitepaper. Regis Binder asked the team if additional benchmarks were needed, as the FERC order uses plural language. Frank Koza stated that the benchmark being considered has components that are useful for assessing both system and equipment impact, and it is being translated to all earth conductivity regions and latitudes and thus was not a singular benchmark. Action items were taken to improve the clarity in the draft, further substantiate the data analysis technique, and improve charts and graphs.

3. **Standards Committee (Project Management and Oversight Subcommittee) Liaison.** Brian Murphy thanked the SDT for their hard work on stage 1 and provided his perspective on applying the complex technical issues associated with the project to the regulatory process.
4. Initial draft planning standard. The drafting team reviewed the overall steps to a GMD assessment, including model requirements, GIC calculation process, ac load flow, assessment of thermal effects, and assessment of protection and control systems. Current publicly-available tools and methods were discussed.
 - a. The drafting team agreed that the standard should apply to owners and operators of the 200 kV network and above for the same reasons as found in the stage 1 whitepaper.
 - b. A discussion of what contingency analysis would be necessary (compared to TPL-001).
 - c. The drafting team discussed planning cases and system configurations to be analyzed in the standard.
 - d. Capability and limitations for transformer thermal assessment were discussed. The SDT agreed that the standard must require an assessment by asset owners. Manufacturer provided capability curves or conservative generalized models would be needed. Work by the GMD TF to develop a transformer modeling guide will help industry meet the requirements. Regis Binder asked the drafting team if the implementation of the requirement could be based on vulnerability. Ran Xu asked how long it takes to get a model from the manufacturer; Luis Marti and others replied that it would take somewhere between a few months to a few years--experiences vary.
 - e. The drafting team discussed approaches for assessing impact of harmonics on the system. It is agreed that there are no publicly available tools for a harmonics study. The team intends to include a requirement to assess impact of GMD on protection and control system but will not be prescriptive due to lack of tools.
 - f. The drafting team agreed that rotor heating impacts could not be included in the standard due to lack of tools for assessment.
 - g. The initial draft standard will be revised by Frank Koza and sent to the drafting team prior to the next meeting.
5. **Reviewed Next Steps for Stage 2**
 - a. A drafting team meeting was confirmed for February 18-20 in Atlanta
 - b. The draft standard and benchmark event will be discussed at the upcoming GMD TF meeting March 18-19 in Atlanta. The drafting team will meet on March 19 to discuss proposed revisions.
6. **Adjourn**
 - a. The meeting adjourned at 5:00 p.m. EST on January 23, 2014