# PGDTF Update to ROS

July 9, 2015

Michael Juricek
PGDTF Chairman

# Regulatory Activity

- On January 21, 2015, NERC filed a Petition for Approval of TPL-007-1 with FERC.
- On February 26, 2015, Foundation for Resilient Societies, Inc. Initiated a Level 2 Appeal which NERC is Processing.
- On May 14, 2015, FERC Issued NOPR Proposing to Approve NERC TPL-007-1 and Directing NERC as Follows.
  - Modify the Benchmark GMD Event Definition and Transformer Thermal Impact Study Requirements.
  - Require Installation of Monitoring Equipment.
  - Establish Specific Deadlines for the Development of Corrective Action Plans and the Completion of Plan Activities.
  - Study GMD Topics and Make Informational Filings to FERC.
- Comments on FERC NOPR Due Before July 27, 2015.

# Responsibilities

**R1** – Each Planning Coordinator, in conjunction with its Transmission Planner(s), shall identify the individual and joint responsibilities of the Planning Coordinator and Transmission Planner(s) in the Planning Coordinator's planning area for maintaining models and performing the study or studies needed to complete GMD Vulnerability Assessment(s).

- ERCOT PC Responsibility – Yes
- TP Responsibility – Yes
- TO Responsibility – No
- GO Responsibility – No

# Responsibilities

**R2** – Each responsible entity, as determined in R1, shall maintain System models and GIC System models of the responsible entity's planning area for performing the study or studies needed to complete GMD Vulnerability Assessment(s).

- ERCOT PC Responsibility – Yes
- TP Responsibility – Yes
- TO Responsibility – No
- GO Responsibility – No

# Responsibilities

**R3** – Each responsible entity, as determined in R1, shall have criteria for acceptable System steady state voltage performance for its System during the benchmark GMD event described in Attachment 1

- ERCOT PC Responsibility – Yes
- TP Responsibility – Yes
- TO Responsibility – No
- GO Responsibility – No

# Responsibilities

**R4** – Each responsible entity, as determined in R1, shall complete a GMD Vulnerability Assessment of the Near-Term Transmission Planning Horizon once every 60 calendar months. This GMD Vulnerability Assessment shall use a study or studies based on models identified in Requirement R2, document assumptions, and document summarized results of the steady state analysis.

- ERCOT PC Responsibility – Yes
- TP Responsibility – No
- TO Responsibility – No
- GO Responsibility – No

# Responsibilities

**R5** – Each responsible entity, as determined in R1, shall provide GIC flow information to be used for the transformer thermal impact assessment specified in Requirement R6 to each Transmission Owner and Generator Owner that owns an applicable Bulk Electric System (BES) power transformer in the planning area.

- ERCOT PC Responsibility – Yes
- TP Responsibility – No
- TO Responsibility – No
- GO Responsibility – No

# Responsibilities

**R6** – Each Transmission Owner and Generator Owner shall conduct a thermal impact assessment for its solely and jointly owned applicable BES power transformers where the maximum effective GIC value provided in Requirement R5 Part 5.1 is 75 A per phase or greater.

- ERCOT PC Responsibility – No
- TP Responsibility – No
- TO Responsibility – Yes
- GO Responsibility – Yes

# Responsibilities

**R7** – Each responsible entity, as determined in R1, that concludes, through the GMD Vulnerability Assessment conducted in R4, that their System does not meet the performance requirements of Table 1 shall develop a Corrective Action Plan addressing how the performance requirements will be met.

- ERCOT PC Responsibility – Yes
- TP Responsibility – Yes
- TO Responsibility – No
- GO Responsibility – No

# Next Activities for PGDTF

- Develop Procedure Manual.
- Develop Plan for Documenting GMD Planning Activities.
- Arrange Training on Model Development and Use of Software.
- Create Model for GMD Vulnerability Assessment.

# Questions and Answers

# Appendix

**Table 1 – Steady State Planning Events**

**Steady State:**

a.Voltage collapse, Cascading and uncontrolled islanding shall not occur.

b.Generation loss is acceptable as a consequence of the planning event.

c.Planned System adjustments such as Transmission configuration changes and re-dispatch of generation are allowed if such adjustments are executable within the time duration applicable to the Facility Ratings.

| Category | Initial Condition | Event | Interruption of Firm Transmission Service Allowed | Load Loss Allowed |
|---|---|---|---|---|
| **GMD**<br>GMD Event with Outages | 1.System as may be postured in response to space weather information[1], and then<br>2.GMD event[2] | Reactive Power compensation devices and other Transmission Facilities removed as a result of Protection System operation or Misoperation due to harmonics during the GMD event | Yes [3] | Yes [3] |

**Table 1 – Steady State Performance Footnotes**

1. The System condition for GMD planning may include adjustments to posture the System that are executable in response to space weather information.
2. The GMD conditions for the planning event are described in Attachment 1 (Benchmark GMD Event).
3. Load loss as a result of manual or automatic Load shedding (e.g. UVLS) and/or curtailment of Firm Transmission Service may be used to meet BES performance requirements during studied GMD conditions. The likelihood and magnitude of Load loss or curtailment of Firm Transmission Service should be minimized.

# Corrective Action Plan

7.1 – List deficiencies and the associated actions needed to achieve required System performance. Examples of such actions include:

- Installation, modification, retirement, or removal of Transmission and generation Facilities and any associated equipment.
- Installation, modification, or removal or Protection Systems or Special Protection Systems.
- Use of Operating Procedures, specifying how long they will be needed as part of the Corrective action Plan.
- Use of Demand-Side Management, new technologies, or other initiatives.

# Corrective Action Plan

7.2 – Be reviewed in subsequent GMD Vulnerability Assessments until it is determined that the System meets the performance requirements contained in Table 1.

7.3 – Be provided within 90 calendar days of completion to the responsible entity's Reliability Coordinator, adjacent Planning Coordinator(s), adjacent Transmission Planner(s), functional entities reference in the Corrective Action Plan, and any functional entity that submits a written request and has a reliability-related need.

- 7.3.1 – If a recipient of the Corrective Action Plan provides documented comments on the results, the responsible entity shall provide a documented response to that recipient within 90 calendar days or receipt of those comments.