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| PGRR Number | [070](http://www.ercot.com/mktrules/issues/PGRR070) | PGRR Title | Revised Responsibilities for Performing Geomagnetic Disturbance (GMD) Vulnerability Assessments |
| Date Posted | | February 19, 2019 | |
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| Requested Resolution | | Normal | |
| Planning Guide Sections Requiring Revision | | 3.1.1.5 GMD Vulnerability Assessment  3.1.8, GMD Vulnerability Assessment Development Process  6.11, Process for Developing Geomagnetically-Induced Current (GIC) System Models | |
| Related Documents Requiring Revision/Related Revision Requests | | None | |
| Revision Description | | This Planning Guide Revision Request (PGRR) aligns the Planning Guide with North American Electric Reliability Corporation (NERC) Reliability Standard TPL-007-2, Transmission System Planned Performance for Geomagnetic Disturbance Events, by identifying responsibilities for performing studies needed to complete benchmark and supplemental Geomagnetic Disturbance (GMD) vulnerability assessments. | |
| Reason for Revision | | Addresses current operational issues.  Meets Strategic goals (tied to the [ERCOT Strategic Plan](http://www.ercot.com/content/news/presentations/2013/ERCOT%20Strat%20Plan%20FINAL%20112213.pdf) or directed by the ERCOT Board).  Market efficiencies or enhancements  Administrative  Regulatory requirements  Other: (explain)  *(please select all that apply)* | |
| Business Case | | This PGRR satisfies NERC Reliability Standard TPL-007-2. | |

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| Market Segment | Not Applicable |

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| Proposed Guide Language Revision |

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| [PGRR057: Insert Section 3.1.1.5 below upon system implementation:]  **3.1.1.5 Geomagnetic Disturbance (GMD) Vulnerability Assessment**  (1) The purpose of Geomagnetic Disturbance (GMD) vulnerability assessments is to provide a coordinated assessment and corrective action plan(s) for the ERCOT System to meet ERCOT and NERC GMD reliability performance criteria for GMD events. The most recent Geomagnetically-Induced Current (GIC) system models developed and maintained by ERCOT in conjunction with the TSPs and Resource Entities as described in Section 6.11, Process for Developing Geomagnetically-Induced Current (GIC) System Models, shall be used as the basis for the ERCOT benchmark and supplemental GMD vulnerability assessments. Projects that are included in the corrective action plan(s) are not considered to have been endorsed by ERCOT until they have undergone the appropriate level of RPG Project Review as outlined in Protocol Section 3.11.4, Regional Planning Group Project Review Process, if required. The process used by ERCOT to develop the GMD benchmark and supplemental vulnerability assessments is outlined in Section 3.1.8, Planning Geomagnetic Disturbance (GMD) Activities. |

***3.1.8 Planning Geomagnetic Disturbance (GMD) Activities***

(1) As required by the applicable NERC Reliability Standard, ERCOT shall employ the GIC system models described in Section 6.11, Process for Developing Geomagnetically-Induced Current (GIC) System Models, to perform simulations to identify maximum effective GIC flow in the high side wye-grounded transformers for the worst case geoelectric field orientation for the benchmark and supplemental GMD events. ERCOT shall provide the preliminary GIC flow results to the TSPs and Resource Entities for comment before finalizing the results. Upon consideration of the comments, ERCOT shall make the maximum effective GIC flows in the high side wye-grounded transformers available to TSPs and Resource Entities by posting this data on the ERCOT MIS Secure Area.

(a) Upon written request from the TSP or Resource Entity who owns a high side wye-grounded transformer within the ERCOT planning area that is included in the ERCOT GIC system models, ERCOT shall perform simulations to make effective GIC time series available no later than 90 calendar days after ERCOT’s receipt of such written requests.

(2) Each TSP and Resource Entity that owns a high side wye-grounded transformer(s) within the ERCOT planning area shall perform the benchmark and supplemental transformer thermal impact assessments as described in the applicable NERC Reliability Standard and shall provide to ERCOT any suggested actions to mitigate the impact of GICs on its transformers within 12 months of the date final GIC flow results are posted on the MIS Secure Area.

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| [PGRR057: Insert paragraphs (3) through (6) below upon system implementation:]  (3) ERCOT and the TSPs shall develop for approval by the Technical Advisory Committee (TAC), criteria for acceptable steady-state voltage performance during the benchmark and supplemental GMD events.  (4) ERCOT shall perform the ERCOT benchmark and supplemental GMD vulnerability assessments as required in the applicable NERC Reliability Standard. ERCOT shall provide preliminary results of the GMD vulnerability assessments to the TSPs and Resource Entities for comment before finalizing the results. Upon request, ERCOT shall make available to the TSPs the GIC system models and other model information used for the GMD vulnerability assessments, including suggested actions described in paragraph (2) above.  (5) For each GMD vulnerability assessment that does not satisfy applicable performance requirements, each TSP and Resource Entity shall develop and document corrective action plan(s) for its facilities, develop a timetable, subject to revision, for implementing the corrective action plan(s), and revise the corrective action plan(s) if situations beyond the control of the TSP or Resource Entity prevent implementation of the corrective action plan(s) within the timetable for implementation as required in the applicable NERC Reliability Standard. For corrective action plan(s) that are subject to Protocol Section 3.11.4, Regional Planning Group Project Review Process, review shall be conducted in accordance with the process described therein. For corrective action plan(s) that are not subject to the review process described in Protocol Section 3.11.4, ERCOT shall review and may approve or reject any corrective action plan(s).  (6) ERCOT shall post the GMD vulnerability assessment report and corrective action plan(s) on the ERCOT MIS Secure Area.  (7) ERCOT in collaboration with TSPs and Resource Entities shall implement a process for ERCOT to obtain GIC monitor data and geomagnetic field data from TSPs and Resource Entities as required in the applicable NERC Reliability Standard. |

6.11 Process for Developing Geomagnetically-Induced Current (GIC) System Models

(1) To adequately simulate Geomagnetic Disturbance (GMD) events, it is necessary to establish and maintain GIC system models and conduct geomagnetic disturbance vulnerability assessments to determine whether the ERCOT System can withstand performance requirements of the benchmark and supplemental geomagnetic disturbance events described in North American Electric Reliability Corporation (NERC) Reliability Standards. These models, known as GIC base cases, shall contain appropriate system data, and shall represent projected system conditions that provide a starting point for the required year(s).

(a) Transmission Service Providers (TSPs) and ERCOT shall develop the GIC base cases. These base cases are derived from the steady-state base cases developed by Steady-State Working Group (SSWG) for the near-term transmission planning horizon to ensure consistency between the system topology in the SSWG base cases and GIC system models.

(b) Each TSP, or its Designated Agent, shall provide its respective transmission network GIC model data in accordance with the GIC System Model Procedure Manual.

(c) Each Resource Entity, or its Designated Agent, shall provide its respective Resource Entity-owned generating units, plants, transmission lines, shunt devices and Generation Step Ups (GSUs) connected to the ERCOT System in accordance with the GIC System Model Procedure Manual and the Resource Registration Glossary.

(d) ERCOT shall aggregate the GIC system model data supplied by each TSP and Resource Entity and shall compile and maintain the GIC system models. Upon completion of compiling the data for the GIC base cases, ERCOT shall post these cases on the ERCOT Market Information System (MIS) Certified Transmission Service Provider Information page for review and comments as described in the GIC System Model Procedure Manual.

(e) Guidelines and formats for the GIC system model data and model maintenance can be found in the GIC System Model Procedure Manual.

(f) GIC data is considered Protected Information pursuant to Protocol Section 1.3, Confidentiality.

(2) Each TSP and Resource Entity shall provide to ERCOT a list of equipment potentially removed from service as a result of protection system operation or misoperation due to harmonics that could result from the benchmark GMD event, and a list of equipment potentially removed from service as a result of protection system operation or misoperation due to harmonics that could result from the supplemental GMD event for use in the GMD vulnerability assessment as outlined in Section 3.1.8, Planning Geomagnetic Disturbance (GMD) Activities.