

ERCOT/TRE Status Report

TPL-007-1 Standard

Transmission System Planned
Performance for Geomagnetic
Disturbance Events

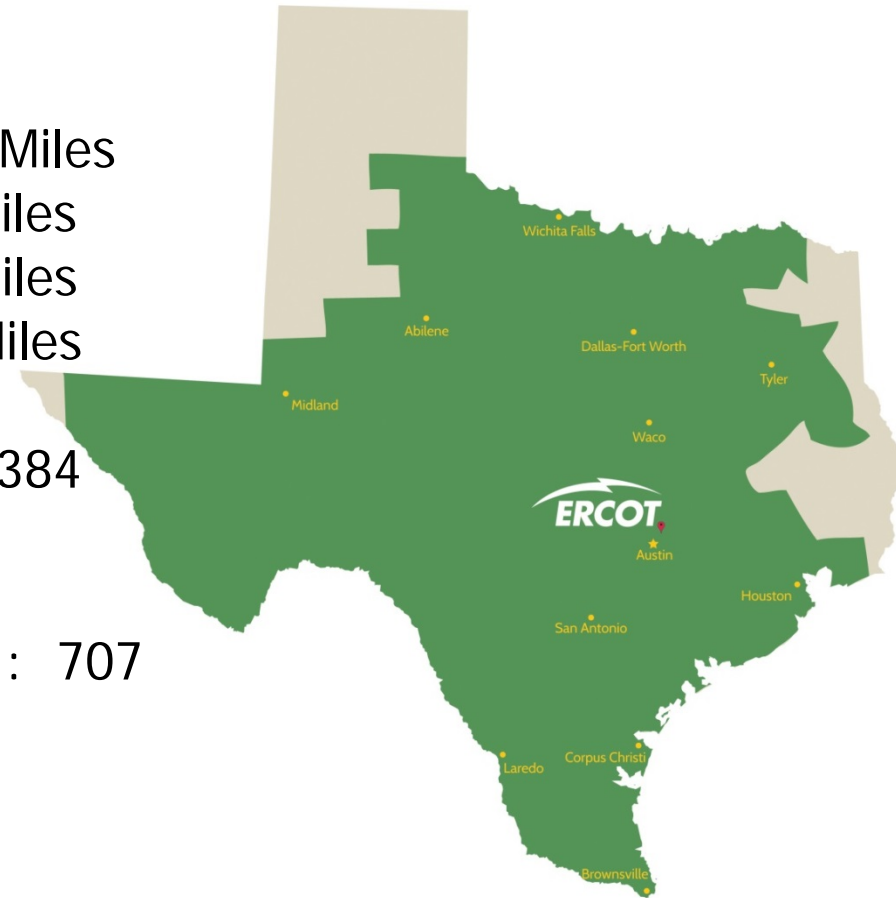
Presentation to

NERC Geomagnetic Disturbance Task Force (GMDTF) Meeting
February 22, 2017, Charlotte, NC

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Senior Manager, Assets Planning
Oncor Electric Delivery Co LLC

ERCOT/TRE System Numbers

- Region Size
 - North to South: ~650 Miles
 - East to West: ~710 Miles
- Transmission Lines: ~46,300 Circuit Miles
 - 345 kV Lines: ~14,100 Circuit Miles
 - 138 kV Lines: ~21,000 Circuit Miles
 - 69 kV Lines: ~11,200 Circuit Miles
- High Side Wye-Grounded Devices: 1384
 - 345/138 kV Transformers: 269
 - 138/69 kV Transformers: 354
 - Main Power Transformers (GSUs): 707
 - 345 kV: 265
 - 138 kV: 387
 - 69 kV: 55
 - 345 kV Shunt Reactors: 54



ERCOT/TRE Response to TPL-007-1

- Late **2014** ERCOT Reliability and Operations Subcommittee (ROS) Created Planning Geomagnetic Disturbance Task Force (PGDTF)
 - Comprised of ERCOT (PC), TPs, TOs, GOs, and Any Interested Entity
 - **December 2014** First Meeting and Fifteen+ Meetings Since
 - Initiated Educational Activities on GMD and NERC Documents
 - Created Web Page <http://ercot.com/committee/pgdtf>
 - **May 2015** Acquired Software to Build the Models and Perform Assessments (ERCOT and some TPs)
 - **July 2016** Completed a GIC System Model Procedure Manual
 - **October 2016** Revision to Planning Guide for GIC Model Data
 - **October 2016** Resource (GO) Registration Glossary Update for GIC Model Data
 - **July 2017** Developing Revision to Planning Guide to Document Responsibilities (TPL-007-1 Requirement 1)
 - Developing GIC System Model (TPL-007-1 Requirement 2)

ERCOT/TRE Response to TPL-007-1

- ERCOT Staff Will Collect Data and Build GIC System Models
- ERCOT GIC System Model Includes 345 kV, 138 kV and 69 kV
 - **December 2016:** 345 kV Data Collected
 - **March 2017:** 138 kV and 69 kV TP Data Collected
 - **April 2017:** Generation Owner Data Collected
 - **June 2017:** 2021 GIC System Model First Pass Created
 - **January 2018:** Approve 2021 On-Peak (Summer Peak) and 2021 Off-Peak GIC System Models

ERCOT/TRE Response to TPL-007-1

ERCOT Staff Will Perform GMD Vulnerability Assessment(s) and Develop Corrective Action Plan(s) in Conjunction with TPs/GOs

- Begin GMD Vulnerability Assessment(s) in **Early 2018** (TPL-007-1 Requirements 3,4, and 5)
- Establish Schedule for TPL-007-1 Requirements 6 and 7 in **2018**
- Transmission Planners May Run Individual Assessment(s)

Identification of Issues and Concerns

- Documentation Supporting Modeling Lower Voltage Levels, In Addition To 200 kV and Above Facilities
- Some Station Grounding Resistance Not Readily Available
- Some Transformer Test Reports Not Readily Available
- Instructions for Building Models in Different Locations

Discussion

