

# GMD Task Force Phase 2

Project Plan

Planning Committee

June 19-20, 2012

**RELIABILITY | ACCOUNTABILITY**



- GMD Task Force released Interim Special Reliability Assessment in February 2012
- The Special Reliability Assessment made 4 high-level recommendations
  - **Recommendation 1:** *Improvement of tools for industry planners to develop GMD mitigation strategies*
  - **Recommendation 2:** *Improvement of tools for system operators to manage GMD impacts*
  - **Recommendation 3:** *Education and information exchanges between researchers and industry*
  - **Recommendation 4:** *Review the need to enhance NERC Reliability Standards*

- Work with government, industry and scientific organizations in the advancement of 2 key areas
  - Vulnerability assessment
  - Operating best-practices
- Scope of GMDTF in Phase 2
  - Provide engineering input and subject-matter expertise to development of task deliverables
  - Review and verify task deliverables

- Primary tasks organized into 4 groups
  - Vulnerability assessment of the North American transformer fleet
  - Update NERC Alert for Geomagnetic Disturbances
  - GMD training and education
  - Review Reliability Standards

- Update of the NERC Alert, GMD webinar and System Operator Training enhancements made in 3 months
- Most of the challenging tasks are scheduled to be completed in 12-24 months
- On-going effort will continue through and following the solar maximum

- Work underway or completed
  - Ground conductivity models
  - 1-in-100 year storm scenarios
  - Geomagnetic Induced Current modeling tools
  - Spare Equipment Database
  - International contacts made to share risk assessment
- Short-term actions
  - Update NERC Alert, System Operator training
  - Host public Geomagnetic Disturbance webinar
  - Promote participation in the NERC/EPRI Research Collaborative on Geomagnetic Disturbance
  - Release and promote open-source tools and models



## *Optional Slides*

## **1. Vulnerability Assessment**

1.1: Transformer construction survey

1.2: Provide and maintain data confidentiality

1.3: Transformer thermal model development

1.4: Transformer testing

1.5: GIC model development

1.6: Extreme “Carrington” GMD scenario development

1.7: Finalize 1-D ground conductivity models

1.8: Facilitate system-wide vulnerability analysis



## **1. Vulnerability Assessment** *(continued)*

1.9: Review industry transformer specifications

1.10: Compile results for release to GMDTF and industry

1.11: Update Special Assessment

## **2. Update NERC Alert for GMD**

2.1: GMD operating practices survey

2.2: Update and release the NERC Alert

## **3. GMD training and education**

3.1: Develop GMD webinar

3.2: Update System Operator training with GMD best practices

3.3: Establish GMD data clearinghouse

## **4. Review Reliability Standards**

4.1: Review Reliability Standards