

Memorandum

To: ISO Board of Governors
From: Keith Casey, Vice President of Market and Infrastructure Development
Date: December 6, 2012
Re: **Transmission Maintenance Coordination Committee Update**

This memorandum does not require Board action.

EXECUTIVE SUMMARY

The Transmission Maintenance Coordination Committee (TMCC) met on October 18, 2012 and discussed the following topics:

1. Corona Detection Equipment;
2. Asset Management Programs;
3. Substation Security;
4. Recent TMCC experiences with North American Electric Reliability Corporation reliability standards;
5. CPUC General Order 174 (Rules for Electric Utility Substations) ;
6. CPUC General Order 165 (Inspection Requirements for Electric Distribution and Transmission Facilities);
7. California and Federal Agency SF₆ regulation requirements; and
8. Grid events and analysis;

The TMCC will meet on January 17, 2012 to decide on the minutes of its October 18, 2012 meeting. Minutes are posted to the TMCC meeting pages at:

<http://www.caiso.com/Documents/Transmission%20Maintenance%20Coordination%20Committee%20meetings>

BACKGROUND

The TMCC is an advisory committee to ISO Management. TMCC membership includes one member representing each participating transmission owner with transmission facilities subject to the ISO transmission maintenance standards, two members representing organizations representing labor interests, five members representing other organizations, and the ISO vice president responsible for transmission maintenance, or his or her designee, who serves as the Chair of the TMCC.

Members of the TMCC perform duties specified in Appendix C to the transmission control agreement, including:

- Convey transmission facility maintenance related information to the ISO vice president responsible for transmission maintenance;
- Seek input from other participating transmission owners and interested stakeholders regarding the ISO transmission maintenance standards; and
- Review any proposed changes to the ISO transmission maintenance standards submitted by the ISO, a participating transmission owner, or any interested stakeholder, and recommend revisions to the ISO transmission maintenance standards for submittal to the Board for approval.

SUMMARY OF TMCC RECENT ACTIVITIES

Discussion on Corona Detection Equipment

Western Area Power Administration (Western) Engineer, David Hahn, presented corona detection equipment information discussed at the annual Electric Power Research Institute (EPRI) Daytime Discharge Inspection Interest Group meeting. At this meeting, EPRI provided training materials on corona detection covering basic instructions on use of the corona detection cameras and the physics and analysis of what is being seen by the cameras. EPRI has scheduled a demonstration of the use of a corona detection camera for the week of October 22, 2012 at Tracy substation.

At the request of several TMCC participants, Mr. Hahn will look into having EPRI make a presentation on their latest corona detection research at the January 17, 2013 TMCC meeting.

Discussion on Asset Management Programs

San Diego Gas and Electric Substation Operations and Engineering Manager, Cory Mitsui, and Substation Analyst, Steve Rehr, made a presentation on SDG&E's in-house condition-based maintenance program. This program uses the latest online web technology to monitor 162 of approximately 200 SDG&E transformers with a primary voltage at least 69kV. The program uses the last five years of transformer oil analysis, current process information (PI) data, and a scoring system that considers the criticality of the equipment, current health, and risk of loss. The program also makes use of the Duval Triangle method to determine the type of fault on a transformer using the dissolved gas analysis data taken shortly after a fault occurs. All of the monitored transformers are overlaid onto a map of SDG&E's operating area, and transformers with red color coding are easily located and identified as needing consideration for maintenance or replacement. This is a five year project that has a development team of five to six personnel, three to four electricians, and IT support. Some TMCC members requested a web conference with SDG&E to learn more about this effort.

Briefing on Substation Security

Mr. Hahn led a discussion on how the various organizations at the meeting were addressing substation security vulnerability. This discussion led to the development of the following list of common issues being experienced:

- Station operations spends considerable time to be compliant with current standards;
- Station access to respond to real time problems is often delayed due to the physical access requirements of the Critical Infrastructure Protection (CIP) standards;
- Utility employees quickly responding under emergency conditions (for example during a natural disaster) may result in the organization being fined if not all CIP standards are able to be followed ; and

The national bill entitled *Cybersecurity Act of 2012* that may help resolve some of these issues was recently stalled in the Senate.

Briefing on Recent TMCC Experiences with NERC Reliability Requirements

Southern California Edison's corporate representative, Sam Stonerock, provided an update on the status of NERC Reliability Standard PRC-005-2 (Protection System Maintenance and Testing). Mr. Stonerock indicated the NERC standard drafting committee is still in the process of crafting the language for the final product. Stakeholders have requested minor modifications that involve inclusion of battery chargers and NERC defined maintenance interval timeframes. The current estimate for PRC-005-2 approval is in April 2013. The most current status of PRC-005-2 can be found at:

http://www.nerc.com/filez/standards/Protection_System_Maintenance_Project_2007-17.html

SCE, Western, and Pacific Gas and Electric shared their recent experiences with WECC Audits.

Briefing on CPUC General Order 174 (Rules for Electric Utility Substations)

CPUC Utilities Engineer, Jesse Ante, provided a status update on the development of the General Order for substation inspection. Within a week after the October 18 TMCC meeting, the CPUC issued a decision adopting General Order 174 (Rules for Electric Utility Substations) on October 25, 2012. This order can be found at:

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M031/K880/31880041.PDF>.

The purpose of this general order is to formulate, for the State of California, uniform requirements for substation inspection programs, the application of which will promote the safety of workers and the public and enable adequacy of service. This order applies to electric utilities subject to the jurisdiction of the CPUC. However, customer substations, substation facilities subject to the California ISO's operational control, and substation facilities subject to FERC reliability standards are exempt from this general order.

In anticipation of this decision, the California Public Safety Division of the CPUC has already started implementation of the order and expects to complete the first round of substation audits by the end of 2013.

Briefing on CPUC General Order 165 (Inspection Requirement for Electric Distribution and Transmission Facilities)

Mr. Ante reported that the California Public Safety Division conducted three transmission audits under GO165 in 2012 and plans a fourth in January 2013.

Briefing on California and Federal Agency SF₆ Regulation Requirements

Los Angeles Department of Water and Power Superintendent of Electrical Station Maintenance Support Services, David Haerle, informed the TMCC that gas insulated switchgear owners and operators will be subject to the same United States Environmental Protection Agency SF₆ reporting rules as applied during 2012, and the reporting date in 2013 will be April 1. Mr. Haerle also stated that the United States Environmental Protection Agency SF₆ report is required from the operators of the equipment regardless of whether they own it.

Mr. Haerle reported that the California Air Resources Board SF₆ report is due on June 1, 2013 by the owners of the SF₆ equipment regardless of whether they operate it. Out-of-state SF₆ equipment is exempt from the California Air Resources Board SF₆ reporting requirements.

Mr. Haerle suggested that joint owners of SF₆ facilities should meet by April 15, 2013 to align their California Air Resources Board reported SF₆ numbers due on June 1, 2013.

The links for the California Air Resources Board and the United States Environmental Protection Agency efforts and associated reporting details are located at:

<http://www.arb.ca.gov/cc/sf6elec/sf6elec.htm>

<http://www.epa.gov/ghgreporting/reporters/subpart/dd.html>

Briefing on Major Grid Events and Analysis

PG&E Substation and Transmission Maintenance Director, Tom Wright, indicated a PG&E 500kV CCVT failed at one of their stations and Mr. Mitsui informed the TMCC that a SDG&E 500kV circuit breaker failed at one of their stations and was removed for failure cause analysis.