California Independent
System Operator Corporation

Memorandum

To: ISO Board of Governors

From: Keith Casey, Vice President, Market & Infrastructure Development

Date: May 10, 2010

Re: **Transmission Maintenance Coordination Committee Activity Update**

This memorandum does not require Board action.

EXECUTIVE SUMMARY

The Transmission Maintenance Coordination Committee (TMCC) met on April 15, 2010 and discussed the following significant topics:

1. TMCC membership renewals, replacements, and additions;
2. CPUC Staff proposed *General Order for Substation Inspection*;
3. CPUC Staff Proposed Rule Changes for Rulemaking R.08-11-005 on fire safety hazards;
4. Bonneville Power Administration(BPA) vegetation management best practice;
5. California Air Resources Board(ARB) proposed SF_6 regulation requirements;
6. Recent TMCC experiences with North American Electric Reliability Corporation reliability standards;
7. California Independent System Operator Corporation, Western Electricity Coordination Council, NERC, and CPUC overlapping maintenance standards; and
8. Major grid events.
9. Participating Transmission Owner (PTO) availability performance control charts for 2008

The TMCC will meet on July 15, 2010 to decide on the minutes of its April 15, 2010 meeting. Minutes are posted at http://www.caiso.com/pubinfo/BOG/documents/grid/mcc/archives.html.

BACKGROUND

TMCC membership renewals, replacements, and additions

TMCC Chairperson, Stephen Rutty, informed the TMCC that the following seven members were approved by the ISO Board of Governors to fill seven two-year voting memberships beginning April 1, 2010.

Voting Member	Job Title	Organization
James Alligan	Director of Compliance	Trans Bay Cable, LLC (TBC)
Raj Beasla	Substation Maintenance and Construction Director	Pacific Gas & Electric (PG&E)
Chuck Cooper	Sierra Nevada Region Maintenance Manager	Western Area Power Administration (WAPA)
Frank Johnson	Substation Construction and Maintenance Manager	San Diego Gas & Electric (SDG&E)
Tibor Foki	Business Representative	International Brotherhood of Electrical Workers Local Union 47 (IBEW 47)
Jorge Somoano	Assistant General Manager	City of Burbank Water & Power (BWP)
David Haerle	Superintendent of Electrical Station Maintenance Support Services	Los Angeles Department of Water & Power (LADWP)

CPUC Staff proposed General Order for Substation Inspection

Southern California Edison Manager of Transmission/Substation Maintenance and Inspection, Michael Palusso, and LADWP Superintendent of Electrical Station Maintenance Support Services, David Haerle provided the current status on the development of the *General Order for Substation Inspection*. They indicated the CPUC staff, consisting of the California Consumer Protection and Safety Division (CPSD), recently requested letters from the organizations attending the previous workshops confirming agreement with the language crafted in the 11/13/2009 draft *General Order for Substation Inspection*. In a parallel effort the CPSD contacted utilities that didn't participate in the workshops to get their consensus on the same document. CPUC Utilities Engineer, Jesse Ante, indicated it could be another year before this work will come to a conclusion.

CPUC Staff Proposed Rule Changes for Rulemaking R.08-11-005 on fire safety hazards

ISO Transmission Asset Engineer, Tom Halford, and IBEW 1245 Business Representative, Landis Marttila, led the discussion on proposed rule changes regarding the CPSD's activity on facilitating Phase 2 of a rulemaking effort to reduce fire safety hazards in California. Mr. Marttila and Mr. Halford focused on the proposed rule changes to existing *State of California General Order 165* that were made effective in 1998 to only cover inspection and subsequent corrective actions of electric distribution facilities under the jurisdiction of the CPUC. They participated in a workshop held on April 7-8, 2010 at CPUC headquarters in San Francisco that addressed and voted on a proposed rule change to GO 165. This rule change requires utilities to prepare and follow their inspection/maintenance procedures on

transmission facilities and allows the CPUC to review and have access to all inspection/maintenance records and transmission maintenance practices of owners having transmission facilities under the CPUC jurisdiction.

Mr. Halford indicated additional workshops and a final report are scheduled for completion in July or August 2010 with an expected decision by the CPUC in November 2010.

BPA vegetation management best practices

BPA Vegetation Management and Access Maintenance Program Manager, Steve Narolski, provided a presentation to the TMCC of BPA's study using five different methods to evaluate vegetation conditions in BPA transmission corridors. 38 side-by-side comparisons were performed over 325 circuits encompassing over 14,000 field data points. The comparisons evaluated clearances for 1) danger brush, 2) danger tree grow-in's, and 3) high brush. The most accurate method used LiDAR (light detection and ranging using aerial laser scanning surveys). The most cost effective method used aerial surveys with a transmission line maintenance person or a natural resource specialist acting as the observer. Suggested study actions are:

- Acquiring new LiDAR data annually @ 20% rate
- Phasing in natural resource specialist ground inspections
- Creating "iso-clearance line counter maps" of all NERC-sanctionable and BPA significant circuit ROW corridors
- Trending reliance of aerial surveys and transmission line maintenance person working patrols toward identifying imminent threats
- Phasing in LiDAR as clearance verification

California Air Resources Board proposed SF_6 regulation requirements

Mr. Haerle informed the TMCC of the current status of the State Assembly Bill AB32 that mandates the ARB to develop regulations to achieve greenhouse gas emission reductions. A proposed regulation for reducing sulfur hexafluoride (SF_6) emissions from gas insulated switchgear was adopted by the ARB at their February 25, 2010 meeting, subject to appropriate modifications by the ARB staff. The primary requirement in this version is that for each calendar year, beginning in 2011, the maximum allowable SF_6 emission rate for gas insulated switchgear owners will be 10% and reduced 1% per year until 2020 where it will remain thereafter at 1% . More status information and the detailed equation for allowable losses can be found at: http://www.arb.ca.gov/cc/sf6elec/sf6elec.htm

Recent TMCC experiences with NERC reliability standards

Mr. Palusso noted there is an open comment period for the Federal Energy Regulatory Commission's definition of "Bulk Electric System" (BES) as clarified in the Notice of Proposed Rulemaking (NOPR) (Docket No. RM09-18-000). This NOPR primarily defines BES equipment as any transmission facility that operates at or above 100kV. The BES definition will be used in the continued development of the NERC *PRC-005-2 (Protection System Maintenance and Testing)* standard. Further discussion on *PRC-005-2* occurred via a conference held in Denver, Colorado on April 27-28, 2010 by the North American Transmission Forum. The current status of *PRC-005-2* is at the following NERC website address: http://www.nerc.com/filez/standards/Protection_System_Maintenance_Project_2007-17.html.

ISO, WECC, NERC, and CPUC overlapping maintenance standards

Mr. Halford addressed what options may be available to reduce duplication of record reviews with regard to the *ISO Transmission Maintenance Standards*, WECC, NERC, and CPUC maintenance standards. The PTO representatives at this meeting indicated they would be able to provide public but not some confidential reports issued to their organizations regarding the results of audits conducted by WECC, NERC, and CPUC. Mr. Rutty indicated the ISO would be willing to consider waiving portions of their annual reviews if the records provided by the PTOs satisfied the ISO records review requirements. *ISO Transmission Maintenance Procedure No. 4* allows the PTOs to recommend acceptance of a request to use another review or for a waiver of the ISO annual maintenance review. The depth of any future acceptance by the ISO of other review records would set the precedence of what detail the records would need to be in to satisfy the ISO records review requirements. The ISO noted it would still conduct site reviews.

Major grid events

Mr. Haerle indicated the ± 500kV DC Intertie from Celilo-Sylmar had a section of line fall down on March 9, 2010 and take out the adjacent 115kV Gorge line. One heavy suspension and 10 guy-supported suspension towers on the DC Intertie collapsed during sustained 70 mph winds with gusts recorded up to 120 mph. The downed towers are designed to handle 90 mph winds with an additional 1.1 safety factor. LADWP crews restored the 115kV Gorge line by March 15 and the DC Intertie line by April 1, 2010. Internal analysis of the root cause is ongoing.

SDG&E Substation Construction and Maintenance Manager, Frank Johnson, provided a presentation of the Imperial Valley substation damage caused by the 7.2 on the Richter scale earthquake near Mexicali, Mexico on April 4, 2010. The greatest portion of the damage was due to bus connector brittle fractures, arrestor porcelain insulator breakage, and transformer porcelain bushing breakage. SDG&E indicated one 500kV transformer bank would be placed back in service in the later part of April 2010 and the other in the middle of May 2010.

Mr. Cooper provided a set of pictures displaying the amount of snow and ice buildup that occurred on their 500kV Captain Jack-Olinda transmission line where it crossed the top of a mountain range. The pictures indicted insulator strings were entirely engulfed and the 18 inch gaps between conductors on a tri-bundle configuration were almost bridged with snow and ice.

PTO availability performance control charts for 2008

Mr. Halford provided a presentation of control charts used as the primary determinant of the effectiveness of a PTO's maintenance program. Thirty-six control charts developed for PTO performance year 2008 indicated what threshold tests were triggered in degradation and improvement across the four voltage classes; 69, 115, 230, and 500kV. Conclusions reached through review of the control charts and supporting outage data:

- The grid as a whole is stable. No maintenance related activities have been linked to degradation
- Fire and weather related issues were the primary causes attributed to any test triggered in degradation.