

Memorandum

To: ISO Board of Governors
From: Armando Perez, Vice President of Planning and Infrastructure Development
Date: March 1, 2007
Re: ***Transmission Maintenance Coordination Committee Activity Update***

This memorandum is for Board information only.

EXECUTIVE SUMMARY

This memo is intended to keep the Board informed of recent activities of the Transmission Maintenance Coordination Committee (TMCC). The TMCC met on January 18, 2007. The following significant topics were discussed or acted upon:

- 1) The new acting Chairperson of the TMCC, Steve Rutty, reminded six voting members of the TMCC that their two year term was coming to a conclusion in April 2007. They were invited to return with nominations from their respective organizations and thus be considered for another two year term. A parallel search for additional candidates would be sent out with a Market Notice around January 24, 2007.
- 2) The TMCC working group's progress on providing recommendations to the CAISO for allowable maintenance activities that would *not* have a significant impact on Congestion Revenue Rights (CRRs) revenue adequacy, and that can continue to utilize the current 3 day (72-hour) advance notice as allowed within the parameters of the September 21, 2006 FERC Order was addressed. These recommendations will be considered by a larger stakeholder process and the CAISO for inclusion in a Business Practice Manual (BPM). The working group anticipates a document with these recommendations will be available to present to the TMCC voting membership at their quarterly April 19, 2007 meeting.
- 3) Pacific Gas and Electric provided an overview of the results of their use of bird protection devices for 115 and 230kV lines and helicopter long line barehand work techniques.

The TMCC was established to help the CAISO develop, review, and revise CAISO Transmission Maintenance Standards from time to time and specifically perform the following duties: periodically convey Maintenance program information to the CAISO Board of Governors, seek input from the PTOs and interested stakeholders regarding CAISO Transmission Maintenance Standards, and make recommendations with respect to proposed amendments and revisions to the CAISO Transmission Maintenance Standards. The next meeting of the TMCC is scheduled for April 19, 2007.

Background

TMCC Membership (New or Renewal)

See March 2007 Board documents for Board approval of TMCC membership.

FERC September 21, 2006 MRTU Order, the section concerning transmission facility outage scheduling:

To be in compliance with the above FERC order, the CAISO, through a stakeholder process, will establish criteria for determining what outages constitute a "significant" impact on CRR revenue adequacy. Once established, this criterion will be included in a CAISO Business Practice Manual (BPM). To assist in this effort, the CAISO has requested that the TMCC take part in the stakeholder process and to provide an initial proposal to be used as the starting point for the overall stakeholder process. The TMCC has established a working group to address this issue.

The CAISO Manager of Outage Management, Mr. Greg VanPelt, attended the January 18th, 2007 TMCC meeting to discuss what the CAISO is expecting from the TMCC before and during the stakeholder process. The following were the major points discussed:

1. The CAISO Stakeholder process for determining significant impact on CRR revenue adequacy to begin in April or May of 2007.
2. Currently no penalties are anticipated to be in place although litigation could serve as a penalty.
3. The TMCC discussed how it should be represented during the stakeholder process (individual entities or one TMCC representative).
4. This CRR process will go live in January 2008 thereby requiring 30-60 day prior notice outages in November or December of 2007.
5. Rules for significant impact criteria may need to be adjusted every 6 months or a year after implementation.
6. The TMCC working group is in the middle of the development of its recommendations and will continue in early 2007 in an effort to finish by the April 19, 2007 TMCC meeting.
7. The TMCC recommendations will most likely establish starting points for the overall stakeholder process to determine what outages may have significant impacts on CRRs.
8. At the January 2007 TMCC meeting the working group submitted the initial draft document providing definitions, a process, and a listing of five different categories of outages based on degree of impact on CRRs.
9. Statistical trends of impact outages using historical SLIC scheduled outage data for bulk power facilities should be examined.
10. CAISO should contact other ISOs currently using CRRs for additional information on what direction to take on outage criteria significantly impacting CRR revenue adequacy.
11. Examine concept of not allowing CRRs to be auctioned or allocated for 2-3 weeks after a planned outage to allow for delays in closing large planned outages.

Pacific Gas and Electric overview of the results of use of bird protection devices for 115 and 230kV lines and helicopter long line barehand work techniques:

BIRD PROTECTION DEVICES:

The devices presented were TYCO 115kV conductor covers that are intended to protect large raptors, replace ineffective bird protection devices, and reduce raptor caused outages. A program has been in place since 2002 to meet these requirements but the TYCO 115kV conductor covers have only been used since 2005 and were a result of a research and development effort to come up with a better product. Attempts previous to 2005 were ineffective because of ongoing electrocution of raptors, fires, damaged property, and CPUC reportable events. The R&D testing on these conductor covers indicated the design was capable of direct contact at rated voltage in both wet and dry conditions and thus able to prevent flashovers caused by brushing of raptor wings. It was noted the line guard material of these covers should not come into direct contact with the metal portion of the insulator nor should the cover bolts be placed to close to the insulator. The covers are in the color red and are approximately 7-8 feet long and 2 foot wide.

Currently these covers have only been installed while the line is de-energized and generally on the tower where a "Take" was found and on the 5 towers located on each side of that tower. Normally only the upper and middle phases require installation as the tower designs for the lower phases are not conducive for bird perches. R&D effort combined with appropriate work procedures may allow energized installation in the future.

During the 2006 year and after the installation of these covers no recurring events have occurred on towers with these covers, eagle incidents have been reduced by 40% on specific lines, and at about \$1000 per phase they are a lower cost solution as compared to changing the design of the towers.

Further discussion by the TMCC indicated the design of these covers might be better if they were modified to reduce wind load. Currently additional weights are sometimes needed to be attached to the conductor in high wind areas where these covers are installed to avoid contact with tower steel.

HELICOPTER LONG LINE BAREHAND TECHNIQUES:

PG&E began developing helicopter work procedures in the 1990's utilizing a joint committee consisting of IBEW 1245 and PG&E personnel. This committee also developed an extensive training program that as of today 150 PG&E line workers have participated in and 40 have been barehand certified. The helicopter work procedures developed by this committee have been approved by the FAA and CAL OSHA with PG&E being the first investor owned utility to employ these work procedures.

The helicopter work procedures allow for skid transfer, long line transfer, skid maintenance, long line maintenance, long line barehand, and platform barehand.

Long line and skid transfers are extremely effective for access to remote areas and performing tasks on many more structures each day. Workers can be transferred from ground to ground, ground to structure, and structure to structure. Workers can be located to perform maintenance on lines for extended durations. Overall efficiency of these operations has significantly improved.

Long line and skid maintenance work that traditionally uses ladders or requires lowering of a conductor can be performed in a fraction of the time when using helicopter work procedures.

Long line and platform barehand work on 500kV lines can be performed. PG&E has performed several projects and this work procedure has proven to be significantly more efficient than de-energizing the circuit or other types of energized line work. Typical work performed in this area over the years are damper and spacer replacement, marker ball installation/maintenance, corona ring maintenance, conductor repair, and installation of shunt splices. Specific project jobs where significant efficiencies were realized in 2006 were replacement of 120 dampers over a 20 mile stretch of energized line (4 man crew and a pilot over 1.5 crew days), replacement of dampers on 12 energized 500kV towers (4 man crew and a pilot over 1 crew day), and removal of 100 poles from a flooded Delta area (3 man crew and a pilot over 2 crew days).

Discussion during the presentation indicated the double seat PG&E uses for their long line helicopter work has a suspension trauma rating of thirty minutes. They also use a seven insulator bells safe working distance when working on energized facilities.