

Memorandum

To: ISO Board of Governors

From: Keith Casey, Vice President of Market and Infrastructure Development

Date: September 10, 2015

Re: Transmission Maintenance Coordination Committee update

This memorandum does not require Board action.

EXECUTIVE SUMMARY

The Transmission Maintenance Coordination Committee (TMCC) met on April 16, 2015 and July 16, 2015. The following were the main topics discussed:

April 16, 2015

1. SDG&E presentation on its use of unmanned aircraft systems for transmission line inspections;
2. PG&E presentation on its insulator wash program;
3. SCE presentation on new Federal OSHA high voltage minimum approach distance requirements;
4. SCE presentation on its 500kV underground transmission line construction project in Chino Hills, CA.

July 16, 2015

1. SDG&E presentation on its experiences with transformer and circuit breaker on-line condition based maintenance monitoring system;
2. WAPA presentation on its transmission line vegetation management programs;
3. ISO presentation on the TMCC charter and associated prerequisites for committee membership.

The next regular scheduled TMCC meeting will be held on October 15, 2015 at the ISO Folsom Headquarters.

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 decision.

SUMMARY OF TMCC RECENT ACTIVITIES - April 16, 2015

SDG&E presentation on its use of unmanned aircraft systems for transmission inspections:

Monica Curry, Transmission Construction & Maintenance Engineer for San Diego Gas & Electric, gave a presentation on SDG&E's use of drones for transmission line maintenance inspections. Ms. Curry noted that SDG&E is still working to develop the technology but that it was recently granted FAA section 333 approval to perform additional inspections. It was noted that one of SDG&E's primary reasons for using drones for inspections is to be able to inspect facilities in environmentally sensitive areas.

PG&E presentation on its insulator wash programs:

Vince Steinman, Manager of Work Methods and Procedures for Pacific Gas and Electric, gave a presentation on PG&E's insulator wash programs, highlighting some of the recent changes being implemented at various PG&E facilities. The changes were based on PG&E's operational experiences, historical washing cycles and regional environmental conditions.

SCE's presentation on new Federal OSHA high voltage minimum approach distance requirements:

Sam Stonerock, Corporate Representative for Southern California Edison, gave a presentation on calculating Federal OSHA minimum approach distances to energized high voltage equipment. Minimum approach distances are calculated based on specific transient overvoltage or "T" values. Utilities can choose to use defined Federal OSHA "T" values or perform an engineering analysis to determine the actual transient overvoltage factors at their facilities.

SCE presentation on its 500kV underground transmission line construction project in Chino Hills, Ca.

Raymond Fugere, Manager of Transmission & Substation FERC/CAISO Compliance for SCE, gave a presentation on SCE's 500kV underground transmission line construction project in Chino Hills, CA. The project was approved as part of Tehachapi Renewable Transmission Project. The 500kV underground section of the project is currently under construction. Mr. Fugere noted that this is the 4th 500kV underground project constructed in the world and the 1st in North America.

SUMMARY OF TMCC RECENT ACTIVITIES - July 16, 2015

SDG&E provided a presentation on its experiences with on-line condition based maintenance monitoring system for transformers and circuit breakers:

Jay Johnson, Construction Supervisor and Tyson Swetek, Manager of Substation Operations for SDG&E, discussed SDG&E's on-line condition based maintenance monitoring. SDG&E has installed monitoring on all of their large substation transformers and have already detected and addressed numerous maintenance items that could have led to the catastrophic failure of individual transformers. In addition, it has been installing pilot systems on a select number of their circuit breakers.

WAPA presented on its transmission line vegetation management programs:

Gary Kelly, Supervisory Maintenance Management Specialist for Western Area Power Administration's Sierra Nevada office, discussed Western's vegetation monitoring process and how WAPA manages vegetation growth in and around its transmission lines and associated right of way.

The ISO provided a presentation on the TMCC charter and associated prerequisites for committee membership:

Steve Rutty, Director of Grid Assets from the California ISO, provided a review of the Transmission Maintenance Coordination Committee Charter and the associated requirements to be selected to serve as a member of the committee.