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# **TRANSMISSION MAINTENANCE COORDINATION COMMITTEE (TMCC) MINUTES October 21, 2021 Webex**

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Steve Ruty, Acting Chairperson of the Transmission Maintenance Coordination Committee (TMCC), called the meeting to order at approximately 10:00 a.m.

## **ATTENDANCE**

### ***The following TMCC members attended:***

James Alligan (NextEra Energy Transmission)  
Monica Curry (San Diego Gas & Electric (SDG&E))  
Tibor Foki (International Brotherhood of Electrical Workers Local Union 47 (IBEW 47))  
David Hahn (Western Area Power Administration (WAPA))  
Alan Hernandez (Southern California Edison (SCE))  
Maria Ly (Pacific Gas & Electric (PG&E))  
Chris McLean (California Energy Commission (CEC))  
Steve Ruty (California Independent System Operator Corporation (CAISO)) – Acting Chairperson

### ***The following TMCC members were not in attendance:***

Brian Brau (LS Power)  
Charles Mee (California Public Utilities Commission (CPUC))  
Bob Gerstle (International Brotherhood of Electrical Workers Local Union 1245 (IBEW 1245))  
Jim Useldinger (GridLiance West Transco (GWT))

### ***The following members of the public were in attendance:***

Jed Ferguson (Valley Electric Association (VEA))  
Chris Hillman (CAISO)  
Scott Vaughan (CAISO)  
Ross Hohlt (LS Power)  
Andrew Gazdziak (SDG&E)  
Byron Shovlain (SDG&E)  
Justin Flores (PG&E)  
Vince Steinman (PG&E)  
Michael Blunt (Trans Bay Cable (TBC))  
Tad Kinyon (TBC)  
Ryan Skelton (IBEW 1245)  
Saul Garibay (SCE)

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The following agenda items were addressed:

***Opening Comments:***

Tibor Foki, IBEW 47 Senior Business Representative, began a discussion on current industry news. The discussion focused on the following points;

- Geo engineering to address climate change
- Hydroelectric impacts due to drought
- Undergrounding and microgrids to mitigate wildfire risk
- Fast charging stations and impacts on the grid

***Decision on 1/21/2021 General Session Minutes:***

The April 15, 2021 meeting minutes were reviewed and approved.

***California Air Resources Board (CARB) Sulphur Hexafluoride regulation revisions:***

Chris Hillman, California ISO Lead Grid Assets Engineer, reviewed the amendments to CARB's regulation for reducing Sulphur Hexafluoride (SF6) emissions from gas insulated switchgear. Mr. Hillman reviewed the phase-out dates for SF6 gas insulated equipment greater than 38 kV and explained the phase out dates varied depending upon voltage capacity and short-circuit current rating. The regulation outlines a procedure for requesting a phase out exemption and the procedure for notifying CARB of SF6 equipment failure and emergency replacement.

***Substation equipment monitoring:***

TMCC members and representatives from SCE, SDG&E and TBC provided presentations and described systems implemented by their respective organizations with monitoring substation equipment. The presentations and discussion highlighted the following points;

- SCE is utilizing dissolved gas analysis (DGA) and partial discharge monitors on some of their 230 kV and 500 kV transformers, with plans to monitor the remainder by 2028.
- SCE monitors transformer main tanks and onload tap changers as an input for condition based maintenance.
- PG&E added that they follow a similar approach but with a focus on a specific fleet or manufacture of transformers.
- SDG&E analyzes the types and amounts of gases through their DGA monitoring, which is both online and manual sampling. SDG&E employs the Rogers Ratio Method and Duval Triangle in their analysis.
- SDG&E is finding benefits in their analysis by allowing for the extension of maintenance interval cycles for load tap changers. SDG&E added transformer Doble testing can now be condition based as opposed to time based testing.
- Trans Bay Cable described their substation equipment monitoring procedures which utilize DGA and partial discharge monitoring, plus infrared inspections. In addition, TBC monitors their submarine cable through geographic information system mapping, bathymetry and a dig-alert / ship monitoring system.

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- TBC added that the submarine cable also has the capability of dynamic acoustic and temperature sensing.

***NERC Reliability Standards, CIP and Compliance:***

None

***Open discussion items:***

None

***New Business Issues and Future Agenda Items:***

None

**TMCC MEMBER ACTION ITEMS**

- ISO will draft the minutes for this meeting and post as a document for the January 20, 2022 TMCC meeting;
- ISO will post the approved minutes for the April 15, 2021 TMCC meeting on the ISO website;

The meeting was adjourned with no objections noted.