

Memorandum

To: ISO Board of Governors

From: Neil Millar, Vice President of Infrastructure and Operations Planning

Date: December 11, 2024

Re: Transmission Maintenance Coordination Committee update

This memorandum does not require ISO Board of Governors action.

EXECUTIVE SUMMARY

The Transmission Maintenance Coordination Committee (TMCC) held a meeting on October 17, 2024. The following were the main topics discussed:

- Non-SF6 Circuit Breaker Programs
- Use of Natural Ester-Based Oils in Power Transformers

The next regularly scheduled TMCC meeting will be held on January 16, 2025, at the ISO headquarters.

BACKGROUND

The TMCC is an advisory committee to ISO management. TMCC membership includes one member representing each participating transmission owner (PTO) with transmission facilities subject to the ISO transmission maintenance standards, two members representing organizations that represent labor interests, five members representing other organizations, and the ISO Vice President of Infrastructure and Operations Planning, or their designee, who serves as the Chair of the TMCC.

Members of the TMCC perform duties specified in Appendix C to the transmission control agreement focused on maintaining the availability of transmission facilities, including:

- Conveying transmission facility maintenance-related information to the ISO Vice President of Infrastructure and Operations Planning;
- Seeking input from PTOs and interested stakeholders regarding the transmission maintenance standards; and

 Reviewing any proposed changes to the transmission maintenance standards submitted by the ISO, a PTO, or any interested stakeholder; and recommending revisions to the standards for submittal to the ISO Board of Governors for decision.

Summary of October 17, 2024 meeting

Non-SF6 Circuit Breaker Programs

Edgar Pabon-Hernandez, Southern California Edison (SCE) Senior Engineer, Asset Transformation and Switching Engineering, and Alan Hernandez, SCE Senior Advisor, T&D Transmission Compliance Integration, presented an overview of SCE's SF6 (Sulfur Hexafluoride) gas replacement program. Mr. Pablo-Hernandez discussed SCE's ongoing pilot programs and implementation schedule using new technology vacuum type non-SF6 circuit breakers. He also discussed the overall industry circuit breaker manufacturers' progress in developing new equipment to meet the mandated California Air Resources Board (CARB) implementation schedule for reducing SF6 emissions from circuit breakers and gas insulated switchgear. Mr. Hernandez discussed a recent letter that was sent to CARB from a group of concerned utilities, including SCE, which described the harmful health affects of utilizing SF6 alternative gasses containing polyflouralkyl substances.

Use of Natural Ester-based Oils in Power Transformers

Monil Patel, Pacific Gas and Electric (PG&E) Substation Standard Engineer, and Rama Reddy, PG&E Senior Manager, Substation Standards Engineering, presented on PG&E's use of natural ester oils in lieu of mineral oil in power transformers. Mr. Patel provided a detailed overview of the differences between natural ester oils and mineral oil including flash point, dielectric strength and viscosity, and noted that natural ester oils are renewable and biodegradable where mineral oil is not. Mr. Patel further described the benefits and challenges with using ester oils in transformer applications. Ms. Reddy discussed PG&E's experience associated with the use of natural ester oils, primarily in 21/12 kV transformers, and noted that PG&E is currently evaluating its use in 60/12 kV transformers. Ms. Reddy indicated that PG&E is also evaluating a common design for 60 kV and 70 kV power transformers to use both liquids.