

**Minutes of Meeting**  
**Working Group C37.12.1 – Guide for AC High-Voltage Circuit Breaker Instruction Manual Content**

**Location:** Westin Beach Resort, Ft. Lauderdale, FL  
**Date:** Wednesday April 3<sup>rd</sup>, 2023 (13:30-15:00 EDT)  
**Quorum:** Membership Count: NA Members Present: **NA**

Agenda

Samuel Zaharko w/MEPPI called the meeting to order and presented the agenda.

Introduction of Members and Guests

23 Total in Attendance

See attached attendance sheet at end of report

This was the first meeting of the new working group. Attendees were asked to indicate on the sign-in sheet their interest in becoming voting members of the working group.

IEEE Copyright Policy and Call for Patents

Patent and copyright policy presented. No Patent claims identified.

The chairman presented the approved PAR and the scope of work to be done. Among the pre-named tasks are to check and revise any and all normative references used in the document, include circuit switchers where applicable, and restore the ANSI logo/affiliation for the document.

Todd Irwin offered and submitted some language that was used in the C37.10 HVCB failure investigation recommended practice document to demonstrate how to include circuit switchers in the introduction and scope sections.

The working group will extend an invitation to Neil McCord, chairman of C37.016 to join the working group for input on any language specific to circuit switchers that might need to be added.

Keith Flowers and Jennifer Santulli were asked about if the PAR request that was submitted to IEEE included a request for ANSI logo affiliation. Initially it appeared to be then later it appears that it might not be. This could require the working group to have to request a revision to the PAR before beginning any work. This will be an item for discussion at the next meeting.

The chairman reviewed the current published version of C37.12.1-2018 on the big screen with the working group and collected suggestions for areas where attendees thought some revision might be necessary.

The working group mutually agreed the existing document was written for vacuum and SF6 gas insulated circuit breakers, and that additional attention needed to be given to revise the document's language regarding potential new insulating and interrupting mediums and materials. This new revised language would be intended to guide the end user as to what information they might want to request in the instruction manual.

The working group agreed unanimously that Sections 5.2 & 5.3 should be replaced with a simple statement to the effect that the instruction manual should include all the data provided on the equipment nameplate as described in C37.04 and C37.016. The working group does not want the document to be confused with a requirement for the manufacturer to provide specific data on the nameplate. Andy Keels (kEElectric

Engineering) and Mike Crawford(MEPPI) agreed to meet separately from the working group to reword Sections 5.1, 5.2, 5.3, 5.4 to indicate what equipment data should be in the instruction manual versus what data from the nameplate should be included in the instruction manual.

The working group recommended revising Section 5.5 to include language to differentiate between insulating material and interrupting material. Then revising Section 5.5 to include parameters that should be monitored for alternative insulating and interrupting mediums. Sam Zaharko (MEPPI), Todd Irwin(GE), and Mike Crawford (MEPPI) volunteered to submit language for revising Section 5.5.

Andy Keels (kEElectric Engineering) volunteered to propose text revising Section 4.4 to include recommendations for lifting or moving the equipment.

Todd Irwin commented that C37.016 should included in the list of normative references.

After the conclusion of the agenda the chairman adjourned the meeting at 15:00 (EDT).

### Schedule

Next meeting will be in-person October 13-17, 2024 at the Omni Hotel, Oklahoma City, OK  
IF a virtual meeting is determined by the Chairman, to be necessary, then a meeting notice will be issued via the iMeet Central workspace calendar.

Reported by:

Andy Keels – Secretary C37.12.1 WG

	<b>Name</b>	<b>Employer/Affiliation</b>	<b>Member Request</b>
1	Sam Zaharko (Chair)	Mitsubishi Electric	Y
2	Andy Keels (Vice Chair/Secretary)	kEElectric Engineering, PLLC	Y
3	Issac Punders	Meiden America Switchgear	Y
4	Mike Skidmore	AEP	Y
5	Todd Irwin	GE Grid Solutions	Y
6	Steeve May	Souther Company	Y
7	Miklos Orosz	CBT S LLC Consulting	Y
8	David Mitchell	Southern States	Y
9	Mike Crawford	Mitsubishi Electric	Y
10	Dave Collette	Mitsubishi Electric	N
11	Jennifer Hunter	Mitsubishi Electric	Y
12	Maxwell Eastman	Black and Veatch	N
13	Chris Jarnigan	Southern Company	Y
14	Dan Benedict	PPL	Y
15	John Sestito	Hyundai Electric	N
16	Rich York	Mitsubishi Electric	Y
17	Anatoly Akhunou	Hico America	Y
18	Tony Ricciati	Eaton	Y
19	Pedro Castillo	ABB	Y
20	Fernando Ordein	Dominion	Y
21	Jeff Scott	Ameren	Y
22	Carl Kurinko	Hitachi Energy	N
23	Matthew Cuppett	Hitachi Energy	Y
24	Aaron M Rexroad	Meiden America Switchgear	Y
25	Sharan Parikh	Duke Energy	Y
26	Devki Sharma		N
27	Jen Santulli	IEEE-SA	N
28	Sergey Rogozhkin	Tavrida Electric	N
29			
30			
31			



**Working Group**  
**C37.12.1 IEEE Recommended Practice for**  
**Instruction Manual Content of AC High-Voltage**  
**Circuit Breakers above 1000 V**

**Chair: Sam Zaharko**  
**Secretary: Andy Keels**



# Agenda

- **Call to Order**
- **Introduction of Attendees**
- **Review of Patent and Copyright slides**
  - **Call for patents**
- **PAR Review**
- **Planned Meeting Frequency**
- **Recommended Practice Revision Discussion**
- **Adjournment**

# Participants Have a Duty to Inform the IEEE

- Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
- Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims

**Early identification of holders of potential Essential Patent Claims is encouraged**

# Other Guidelines for IEEE Working Group Meetings

- All IEEE SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
  - Don't discuss the interpretation, validity, or essentiality of patents/patent claims.
  - Don't discuss specific license rates, terms, or conditions.
    - Relative costs of different technical approaches that include relative costs of patent licensing terms may be discussed in standards development meetings.
      - Technical considerations remain the primary focus.
  - Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.
  - Don't discuss the status or substance of ongoing or threatened litigation.
  - Don't be silent if inappropriate topics are discussed. Formally object to the discussion immediately.

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For more details, see *IEEE SA Standards Board Operations Manual*, clause 5.3.10 and *Antitrust and Competition Policy: What You Need to Know* at <http://standards.ieee.org/develop/policies/antitrust.pdf>

# Patent-Related Information

The patent policy and the procedures used to execute that policy are documented in the:

- ***IEEE SA Standards Board Bylaws***  
(<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6>)
- ***IEEE SA Standards Board Operations Manual***  
(<http://standards.ieee.org/develop/policies/opman/sect6.html#6.3>)

Material about the patent policy is available at  
<http://standards.ieee.org/about/sasb/patcom/materials.html>

**If you have questions, contact the IEEE SA  
Standards Board Patent Committee  
Administrator at [patcom@ieee.org](mailto:patcom@ieee.org)**



# IEEE SA Copyright Policy

**By participating in this activity, you agree to comply with the IEEE Code of Ethics, all applicable laws, and all IEEE policies and procedures including, but not limited to, the IEEE SA Copyright Policy.**

- Previously Published material (copyright assertion indicated) shall not be presented/submitted to the Working Group nor incorporated into a Working Group draft unless permission is granted.
- Prior to presentation or submission, you shall notify the Working Group Chair of previously Published material and should assist the Chair in obtaining copyright permission acceptable to IEEE SA.
- For material that is not previously Published, IEEE is automatically granted a license to use any material that is presented or submitted.

# IEEE SA Copyright Policy Resources

- The IEEE SA Copyright Policy is described in the IEEE SA Standards Board Bylaws and IEEE SA Standards Board Operations Manual
  - IEEE SA Copyright Policy, see
    - Clause 7 of the IEEE SA Standards Board Bylaws  
<https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7>
    - Clause 6.1 of the IEEE SA Standards Board Operations Manual  
<https://standards.ieee.org/about/policies/opman/sect6.html>
  
- IEEE SA Copyright Permission
  - <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/permissionltrs.zip>
  
- IEEE SA Copyright FAQs
  - <https://standards.ieee.org/faqs/copyrights/>
  
- IEEE SA Best Practices for IEEE Standards Development  
[http://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/best\\_practices\\_for\\_ieee\\_standards\\_development\\_051215.pdf](http://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/best_practices_for_ieee_standards_development_051215.pdf)
  
- Distribution of Draft Standards (see 6.1.3 of the SASB Operations Manual)
  - <https://standards.ieee.org/about/policies/opman/sect6.html>

# Par Review

- PAR Approval November 8<sup>th</sup>, 2023
- PAR Expiration Date December 31<sup>st</sup>, 2027
- Approved New Scope
  - “This recommended practice identifies, organizes, and summarizes information about high-voltage circuit breakers and circuit switchers provided by the manufacturer that is helpful to knowledgeable users for the receipt, installation, commissioning, operation and maintenance, and decommissioning of ac high-voltage circuit breakers and circuit switchers above 1000 VAC. This recommended practice recommends categories and an arrangement for the presentation of information in circuit breaker and circuit switcher instruction manuals”

# Par Review

## ■ Approved New Purpose

- “ The purpose of the document is to provide recommendations for authors and those who specify instruction manuals for ac high-voltage circuit breakers and circuit switchers. Structuring instruction manual content according to a common (standard) format shown herein allows knowledgeable users a means to effectively and quickly, find the information they need.”

# Meeting Schedule (subject to change)

- Anticipate 3 meetings per year
  - April '24 – 1<sup>st</sup> meeting in person at Spring 2024 PES Meeting in Fort Lauderdale
  - Oct '24 – In person meeting at Fall 2024 PES Meeting in Oklahoma City
  - March '25 – Virtual meeting in preparation for Spring 2025 Meeting
  - April '25 – In person meeting at Spring 2025 PES Meeting in Orlando
  - Oct '25 – In person meeting at Fall 2025 PES Meeting in Reno
  
- IMeet Central Site to be built following today's meeting

# Working Group Membership

- Because initial meeting of working group attendance grants voting membership to the WG
- Please indicate on sign in sheet if you would like to be a member of the WG



# Recommended Practice Revision Discussion

- Overall goal of WG is to update the recommended practice to include circuit switchers along with circuit breakers for recommended practices for instruction manual content
- Overall goal of this meeting is to establish areas of the existing document that will require additional work to cover the addition of circuit switchers in this recommended practice

# Recommended Practice Revision Discussion

## – General Changes

### ■ Section 1 – Overview

- Scope and Purpose to be updated to match approved PAR
- Section 1.3 Limitations
  - Reference to C37.04 for “essential markings on a circuit breaker”
  - Similar existing standards for circuit switchers?

### ■ Section 2 – Normative References

- Additional references for standards, guides, or recommended practices for circuit switchers?

### ■ Section 3 – Definitions

# Recommended Practice Revision Discussion

## – Section 4

- Section 4 – Recommended Instruction Manual Content
  - Significant differences in circuit breaker and circuit switcher content in the following sections?
  - Method of inserting circuit switchers into this RP
    - Replace “circuit breaker” with “circuit breaker and circuit switcher”?
    - Additional paragraph in each section?
    - Totally new section

# Recommended Practice Revision Discussion

## – Section 4

- General Description
- Safety and Precautions
- Receiving, Handling, and Storage Instructions
- Circuit Breaker Installation and Assembly Instructions
- Circuit Breaker Field Testing Instructions
- Circuit Breaker Operating Instructions
- Description of Circuit Breaker Auxiliary Systems (Pneumatic or Hydraulic Systems, SF6 Systems, etc.)
- Description of Circuit Breaker Mechanism
- Description of Circuit Breaker Interrupter
- Circuit Breaker Production Tests
- Expected Circuit Breaker Inspection and Maintenance Activities
- Failure Reporting
- End-of-life Procedures
- Drawings
- Recommended Renewable Parts Data

# Recommended Practice Revision Discussion

## – Section 5

- Section 5 – Information and Characteristics of Circuit Breakers
  - Significant differences in circuit breaker and circuit switcher content in the following sections?
  - Method of inserting circuit switchers into this RP
    - Replace “circuit breaker” with “circuit breaker and circuit switcher”?
    - Additional paragraph in each section?
    - Totally new section?

# Recommended Practice Revision Discussion

## – Section 5

- General
- Applicable Nameplate Data
- Specific Data
- Applicable Timing Data
- Verify Condition of Interrupting Medium
- Mechanism Limit Switch or Pressure Switch Settings
- External Insulator Data



# Recommended Practice Revision Discussion

## – Section 6

- Section 6 – Form of Instruction Manual and Updating
  - No changes necessary

### 6. Form of instruction manual and updating

The manufacturer and owner should agree on the form in which to provide the instruction manual. Various forms of hardcopy or electronic documentation are common.

Consideration should be given to the process of future notification and updating of the instruction manual by both the manufacturer and the user, especially in view of corporate changes, mergers, and acquisitions that might occur in the future. This may leave the manufacturer unaware of who the ultimate future end user is as well as the future user being unaware of who the original equipment manufacturer is now operating as. This information exchange process should include any subsequent information regarding operating characteristics, maintenance changes, safety issues, or precautions to be taken by the user.

# Recommended Practice Revision Discussion - Other

- Calling on the WG for any other recommendations for sections of the recommended practice that should be looked at or discussed further

# Adjourn