

**Minutes of Meeting
High Voltage Circuit Breaker Subcommittee**

Fall 2024

Omni, Oklahoma City, OK

Thursday, October 17, 2024

The chair called the meeting to order at 10:15.

Introduction of all participants including members and officers.

83 participants in attendance

38 of 57 voting members present – **quorum OK**.

Excused HVCB voting members: R. Alexander, G. Becker, A. Bufi, M. Crawford, P. DiLillo, D. Sharma

Chair reviewed IEEE patent slides and asked for participants to report any essential patent claims – none reported.

Chair reviewed IEEE copyright slides and asked participants to report any need for copyright permissions – none reported.

Chair notified participants of the IEEE participant behavior requirements.

Chair asked for a motion to approve the fall 2024 meeting agenda.

Motion: L. Collette

Second: J. Webb

Discussion: None

The motion was approved by unanimous consent.

Chair asked for a motion to approve the spring 2024 meeting minutes.

Motion: J. Webb

Second: L. Falkingham

Discussion: None

The motion was approved by unanimous consent.

Chairman's report:

- **Requested working group chairs to email their meeting minutes to the subcommittee secretary no later than Friday, November 1.** daniel.schiffbauer@ieee.org
- Reminder to please *not* include personal contact information of working group attendees in the meeting minutes – only name and affiliation.
- Please sign up for the new Committee Management System (CMS) at: <https://ieee.memberplanet.com/v2app/#/member-registration/join>
- The link below explains how working group officers can complete the roster of working group members in the MyProject system. https://standards-support.ieee.org/hc/en-us/articles/4412967015572-Manage-Group-Rosters#h_01FVJAV1N73WA6HQJV6369Y9N5

New Business:

1. PC37.01 Standard for HVDC Circuit Breakers above 3200 VDC

Chair: S. Chen

Secretary: C. Schuetz

The working group met on Monday 10/14 without quorum.

The goal is to have draft 1.0 completed in Q1 2025.

The **PAR expires at the end of 2024**. 10/21/24 is the NESCOM submittal deadline for December meetings.

The WG chair requested approval from HVCB for a PAR extension.

Motion: S. Chen

Second: D. Mitchell

Discussion: The WG has not yet approved a PAR extension. It was concluded that HVCB could provisionally approve the PAR extension request while the WG considers the same issue by letter ballot in parallel (prior to 10/21 NESCOM submission deadline).

The motion was approved by unanimous consent.

Two WG meetings are requested for spring 2025.

2. PC37.04a Standard for Ratings and Requirements for AC High Voltage Circuit Breakers with Rated Maximum Voltage above 1000 V

Amendment: Changes to construction requirements and clarification of certain related required capabilities

Chair: John Webb

Secretary: Marcus Young

The working group met with quorum on Tuesday, October 15.

The amendment has been successfully balloted and a comment resolution group is currently addressing the remaining comments.

PAR expires 2025 – extension not expected

3. C37.04 Standard for Ratings and Requirements for AC High Voltage Circuit Breakers with Rated Maximum Voltage above 1000 V

The document expires at the end of 2028 and a PAR has been drafted to revise C37.04.

The subcommittee chair asked for a motion to submit the PAR to NESCOM along with a recommendation to keep J. Webb and M. Young as chair and secretary respectively.

Motion: A. Livshitz

Second: J. Ward

Discussion: None

The motion was approved by unanimous consent.

4. PC37.06.1 Recommended Practice for Preferred Ratings for High-Voltage (>1000 volts) AC Circuit Breakers Designated Definite Purpose for Fast Transient Recovery Voltage Rise Times

Chair: D. Schiffbauer

Secretary: D. Benedict

The PAR expires at the end of 2028 and the document expires at the end of 2027.

This document requires ANSI accreditation.

The WG met for the first time on Tuesday, October 15 with 19 attendees where a motion to ballot pending successful MEC and subcommittee approval was approved.

The subcommittee chair asked for a motion to permit the WG to ballot PC37.06.1 pending successful MEC.

Motion: J. Webb

Second: D. Mitchell

Discussion: None

The motion was approved by unanimous consent.

5. PC37.09a IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis

Amendment: Modifications to test procedures

Chair: J. Weisker

Secretary: C. Jarnigan

The working group met with quorum on Monday, October 14.

The amendment has been successfully balloted and a comment resolution group is currently addressing the remaining comments. There will be a virtual meeting prior to the next ballot recirculation.

PAR expires 2025 – extension not expected

6. C37.09 IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis

The document expires at the end of 2028 and a PAR has been drafted to revise C37.09.

This document requires ANSI accreditation.

A PAR study group met on Monday, October 14 where it was agreed to draft a PAR to revise C37.09.

A motion was made to submit a PAR to NESCOM to revise C37.09 and disband the PAR study group.

Motion: J. Weisker

Second: C. Jarnigan

Discussion: None

The motion was approved by unanimous consent.

7. PC37.010 Application Guide for AC High-Voltage Circuit Breakers > 1000 Vac Rated on a Symmetrical Current Basis

Chair: A. Keels

Secretary: L. Collette

The **PAR expires at the end of 2025** and the document expires at the end of 2026.

The working group met on Tuesday, October 15 with quorum.

There will be four to five virtual meetings then ballot.

The WG requests one meeting in spring 2025.

8. P62271-37-013 International Standard for High-Voltage Switchgear and Controlgear - Part 37-013: Alternating Current Generator Circuit Breakers

The document expires at the end of 2031.

Chair: M. Palazzo

Secretary: M. Westerdale

9. PC37.015 Guide for the Application of Shunt Reactor Switching

Chair: M. Crawford

Secretary: L. Collette

The document and PAR both expire at the end of 2027.

This document requires ANSI accreditation.

The working group met on Wednesday, October 16 with quorum.

The plan is to request approval to ballot at the fall 2025 meeting.

10. PC37.016 Standard for AC High-Voltage Circuit Switchers Rated 15.5 kV through 245 kV

Chair: N. McCord

Secretary: L. Collette

The **PAR expires at the end of 2025** and the document expires at the end of 2028.

This document requires ANSI accreditation.

The working group met on Monday, October 14 with quorum.

The next WG meeting will be virtual in November.

11. PC37.017 Standard for Bushings for High-Voltage (Over 1000 Vac) Circuit Breakers and Gas-Insulated Switchgear

Chair: D. Sharma

Secretary: C. Schuetz

The PAR expires at the end of 2028 and the document expires at the end of 2030.

This document requires ANSI accreditation.

The WG met for the first time on Tuesday, October 15 with 16 attendees where a motion to ballot pending successful MEC and subcommittee approval was approved.

A motion was made to permit the WG to ballot PC37.017 pending successful MEC.

Motion: D. Mitchell

Second: T. Irwin

Discussion: None

The motion was approved by unanimous consent.

12. P62271-37-082 High-voltage Switchgear and Controlgear - Part 37-082: Standard Practice for the Measurement of Sound Pressure Levels on Alternating Current Circuit-breakers

Chair: L. Falkingham

Secretary: C. Schuetz

The document has been inactive-reserve since the end of 2022. **PAR expires at the end of 2025.**

This dual logo document requires ANSI accreditation.

The working group met on Wednesday, October 16 with quorum where a motion to withdraw the PAR was approved.

A motion was made to withdraw the PAR.

Motion: L. Falkingham

Second: J. Webb

Discussion:

The document will still be available after 2025 since it exists as a dual logo standard with IEC where the current IEC stability date is 2030.

ANSI accreditation of a dual logo standard is possible. The IEC US National Committee would have to adopt the dual logo standard as an ANSI standard. To start the process, the WG should request a Project Initiation Notification (PIN) be submitted by the Accredited Standards Committee (ASC) representative (J. Webb). This was done during the subcommittee meeting.

The motion was approved by unanimous consent.

13. PC37.10 Guide for Investigation, Analysis, and Reporting of Power Circuit Breaker Failures

Chair: T. Irwin
Secretary: J. Ward

The document has been inactive-reserve since the end of 2021 and the **PAR expires at the end of 2024.**

This document requires ANSI accreditation.

The comment resolution group met on Wednesday, October 16. All comments were addressed and the WG is ready to initiate a ballot recirculation.

A motion was made to approve a PAR extension request.

Motion: T. Irwin

Second: C. Jarnigan

Discussion: None

The motion was approved by unanimous consent.

14. PC37.10.1 Guide for the Selection of Monitoring for Circuit Breakers

Chair: D. Mitchell

Secretary: F. Ordein

Both the document and the PAR expire at the end of 2028.

This document requires ANSI accreditation.

The WG met for the first time on Tuesday, October 15 with 17 attendees where a motion to ballot pending successful MEC and subcommittee approval was approved. Two to three virtual meetings are planned before February, 2025.

A motion was made to permit the WG to ballot PC37.10.1 pending successful MEC.

Motion: D. Mitchell

Second: C. Jarnigan

Discussion: None

The motion was approved by unanimous consent.

15. PC37.12 Guide for Specifications of High-Voltage Circuit Breakers (over 1000 V)

Chair: T. Irwin

Secretary: A. Beckel

The PAR expires at the end of 2027 and the document expires at the end of 2028.

This document requires ANSI accreditation.

The working group did not meet at the fall 2025 switchgear committee meeting.

The working group will need one meeting at spring 2025 switchgear.

16. PC37.12.1 Recommended Practice for Instruction Manual Content of AC High-Voltage Circuit Breakers Above 1000 V

Chair: S. Zaharko

Secretary: A. Keels

The PAR expires at the end of 2027 and the document expires at the end of 2028.

This document requires ANSI accreditation.

The working group will hold one virtual meeting prior to spring 2025 switchgear.

17. Technology and Innovation (T&I) subcommittee

- Request for volunteers to submit proposals for TRV parameter paper. The purpose is to document origins and identify opportunities for alignment.
- Contact D. Benedict or S. Cochran for more information.

18. HVCB standards consolidation

- C37.06.1 can still possibly be consolidated with C37.04 during the next revision. Afterwards, C37.06.1 would be withdrawn.

19. Future Meetings

Spring 2025: April 6-11, Wyndham Bonnet Creek, Orlando, FL

Fall 2025: October 5-9, Peppermill Resort, Reno, NV

Spring 2026: April 26-30, Sheraton Sand Key Resort, Clearwater Beach, FL

Fall 2026: October 4-8, Catamaran Resort, San Diego, CA

Motion to adjourn: A. Keels

Second: C. Jarnigan

Voting Member Attendance:

Family	Given	Affiliation	Attendance
Alexander	Roy	RWA Engineering	EA
Aristizabal	Mauricio	Hitachi Energy	X
Ashtekar	Koustubh	S&C Electric	X
Becker	George	Power Engineers	EA
Bufi	Arben	Meiden America Switchgear, Inc.	EA
Cary	Stephen	2-phase solutions	
Caverly	David	Trench Ltd.	
Chen	Steven	Eaton	X
Chovanec	Andrew	Power Grid Components	X
Christian	Michael	ABB	
Collette	Lucas	Duquesne Power & Light	X
Crawford	Michael	MEPPI	EA
Cunningham	Jason	Southern States	X
Di Lillo	Patrick	Consolidated Edison	EA
Di Michele	Federico	KEMA	X
Door	Jeffrey	The H-J Family of Companies	X
Falkingham	Leslie	Vacuum Interrupters Limited	X
Flores	Sergio	Schneider Electric	X
Hensberger	Jeremy	MEPPI	X
Hermosillo	Victor	GE Vernova	X
Hu	Jingxuan (Joanne)	RBJ Engineering	
Hunter	Jennifer	MEPPI	X
Irwin	Todd	GE Vernova	X
Jarnigan	Christopher	Southern Company	X
Johnson	David	HVCB	
Keels	Thomas (Andy)	Clearway Energy	X
Leccia	Brad	Eaton	X
Liu	Hua Ying	Southern California Edison	
Livshitz	Albert	Qualus Services	X

Family	Given	Affiliation	Attendance
Lopez	Adrian	Powell Industries	X
Marshall	Vincent	Southern Company	
May	Steven	Southern Company	X
McCord	Neil	KEC Precision	X
Mitchell	Dave	Southern States	X
Nelson	Jeffrey	TVA	
Palazzo	Mirko	Hitachi Energy	X
Polchinski	Craig	MEPPI	
Ricciuti	Anthony	Eaton	X
Santos	Leonel	Schneider Electric	X
Schiffbauer	Daniel	Toshiba International Corporation	X
Schuetz	Carl	ATC	X
Scott	Jeff	Ameren	
Sharma	Devki	Self	EA
Skidmore	Michael	AEP	X
Smith	Robert (Kirk)	Retired	X
Steigerwalt	Don	Duke Energy	X
Toups	Vernon	Siemens Energy	
Trichon	Francois	Schneider Electric	X
Ward	Jeffrey	Doble Engineering	X
Webb	John	ABB	X
Weeks	Casey	Siemens Energy	
Weisker	Jan	Siemens Energy	X
Westerdale	Matt	US Bureau of Reclamation	
Woodyard	Terrance	Siemens Industry	X
York	Richard	MEPPI	X
Young	Marcus	MEPPI	
Zhang	Wei	Southern Company	X

NOTE – EA (Excused Absence) does not count against continued membership and does not count toward meeting quorum.

F24 HVCB Meeting Agenda:

HVCB Subcommittee Agenda, 10/17/2024, 10:15-12:00, Oklahoma 4

1) Introduction of Members and Guests

2) IEEE Slides

- Patent slides
- Copyright policy

Quorum Check

3) Approval of Minutes of Previous Meeting

Approval of Minutes of S24 meeting.

Motion for approval:
Second:

4) Membership

Voting Members ^a	Excused Members	Quorum Requirement ^b
57	5	≥ 26 members

- Does not include new members announced during this meeting.
- Quorum Count includes Members, Chair and Secretary but not excused members. Membership at the meeting must be ≥ 50% for quorum.

Excused members:

R. Alexander, G. Becker, A. Bufi, M. Crawford, D. Sharma

5) Chairman's Report

Chairman (Carl Schuetz) carl.schuetz@ieee.org (262) 506-6962
Secretary (Dan Schiffbauer) daniel.schiffbauer@ieee.org (713) 540-2968

- Working group chairs please email meeting minutes to the subcommittee secretary no later than Friday, November 1.
- Please do not include personal contact information of working group attendees in the meeting minutes – only name and affiliation.
- Please sign up for the new Committee Management System (CMS) at <https://ieeememberplanet.com/v2app/#/member-registration/join>
- New HVCB members
 - None
- Recognition of retirees
(Any person that has, or will retire before the spring meeting in Orlando, FL)

F24 HVCB Agenda Rev00

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HVCB Subcommittee Agenda, 10/17/2024, 10:15-12:00, Oklahoma 4

- The addition of working group voting members into the MyProject system. The link explains how working group officers can complete the roster within MyProject. https://standards-support.ieee.org/iee/en-us/articles/4412967015572-Manage-Group-Rosters#h_01FVJAV1N73WA6HQJV6369Y9N5
- Review HVCB working group's membership and attendance tracking.
- HVCB officer rotation will go into effect after the F24 meeting.

6) New Business

- HVCB documents approved by RevCom or published since the last meeting
 - 62271-37-013 Cor1
- HVCB working group reports
 - PC37.01 - Standard for High Voltage Direct Current Circuit Breakers Above 3200 Vdc
Chair: Steven Chen
Vice Chair: Paul Yang
Secretary: Carl Schuetz
 - PC37.04a - Standard for Ratings and Requirements for AC High-Voltage Circuit Breakers with Rated Maximum Voltage Above 1000 V Amendment: Changes to construction requirements and clarification of certain related required capabilities
Chair: John Webb
Secretary: Marcus Young
 - PC37.06.1 - IEEE Recommended Practice for Preferred Ratings for High-Voltage (>1000 volts) AC Circuit Breakers Designated Definite Purpose for Fast Transient Recovery Voltage Rise Times
Chair: Dan Schiffbauer
Secretary: Dan Benedict
 - PC37.09a - Standard Test Procedures for AC High-Voltage Circuit Breakers with Rated Maximum Voltage Above 1000 V Amendment: Modifications to test procedures
Chair: Jan Weisker
Secretary: Chris Jamigan
 - PC37.010 - Application Guide for AC High-Voltage Circuit Breakers > 1000 Vac Rated on a Symmetrical Current Basis
Chair: Andy Keels
Secretary: Jeremy Hensberger
 - PC37.015 - IEEE Guide for the Application of Shunt Reactor Switching
Chair: Mike Crawford
Secretary: Luke Collette

F24 HVCB Agenda Rev00

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- vii) PC37.016 - IEEE Standard for AC High Voltage Circuit Switchers Rated 15.5kV through 245kV
Chair: Neil McCord
Vice Chair: S. Byreddy
Secretary: Luke Collette
 - viii) PC37.017 - IEEE Standard for Bushings for High-Voltage (Over 1000 Vac) Circuit Breakers and Gas-Insulated Switchgear
Chair: Devki Sharma
Vice Chair: xxx
Secretary: xxx
 - ix) P62271-37-082 - High-voltage Switchgear and Controlgear - Part 37-082: Standard Practice for the Measurement of Sound Pressure Levels on Alternating Current Circuit-breakers
Chair: Leslie Falkingham
Secretary: Carl Schuetz
 - x) PC37.10 - IEEE Guide for Investigation, Analysis, and Reporting of Power Circuit Breaker Failures
Chair: Todd Irwin
Secretary: Jeff Ward
 - xi) PC37.10.1 - IEEE Guide for the Selection of Monitoring for Circuit Breakers
Chair: Dave Mitchell
Secretary: Fernando Ordein
 - xii) PC37.12 - IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1000 Volts)
Chair: Todd Irwin
Secretary: Andy Beckel
 - xiii) PC37.12.1 - IEEE Guide for High Voltage (>1000V) Recommended Practice for Circuit Breaker Instruction Manual Content
Chair: Sam Zaharko
Secretary: Mike Crawford
- 7) **Liaison Reports**
- a) T&I Subcommittee
- 8) **Old Business**
- a) ANSI revision activity supersedes standards consolidation.

- 9) **Future Meetings**
- a) Spring 2025: April 6-11, Wyndham Bonnet Creek, Orlando, FL
 - b) Fall 2025: October 5-9, Peppermill Resort, Reno, NV
 - c) Spring 2026: April 26-30, Sheraton Sand Key Resort, Clearwater Beach, FL
 - d) Fall 2026: October 4-8, Catamaran Resort, San Diego, CA
- 10) **Adjourn**
- Motion:
Second: