

1) **Introduction of Members and Guests**

Mike Skidmore / Victor Hermosillo

Introductions:

Introduction of new members: **No new members were reported**

2) **Approval of Minutes of Previous Meeting**

Mike Skidmore / Victor Hermosillo

Approval of Minutes of Portland, ME

The meeting minutes were submitted after meeting and posted online at IEEE website.

The Chair asked if anyone needed to review the HVCB meeting minutes (MOM) from the Fall 2017 conference. No one wanted to review MOM.

Move: Andy Keels

Second: Leslie Falkingham

Unanimous approval

3) **Membership**

	ROLE AS MEMBERS	ROLE AS GUESTS	ROLE AS CORRESPONDING MEMBERS	REQUIRED* FOR QUORUM COUNT	TOTAL
HVCB Committee Roster	43	126	12	≥ 50% membership at meeting (≥ 22 members)	181
Attendance Recorded Lake Buena Vista, FL	33	41	2	Quorum met 35/43 (81%)	76

*Quorum Count includes: Active Members, Chair, Secretary, and (Corresponding Members if present at the meeting)

4) **Chairman's Report**

Mike Skidmore / Victor Hermosillo

Chairman (Mike Skidmore): mikeskidmore@ieee.org

614-933-2154

Vice-Chairman (Victor Hermosillo): vfhermosillo@ieee.org

724-483-7875

- WG chairs need to email minutes of their WG meetings to the subcommittee secretary no later than May 11th, 2018.

5) **Reports of Working Groups**

a) **Technical Paper Reviews**

Kirk Smith

No technical papers reported.

b) **WG Activities**

HVCB Switchgear Subcommittee Agenda, 4-25-2018 Lake Buena Vista, FL

Document	Title	SubCommittee	WG Chair	PAR	IEEE Status	Activity
PC37.04	Standard for Ratings and Requirements for AC High Voltage Circuit Breakers with Rated Maximum Voltage above 1000 V	HVCB	Stephen Cary	PAR Expires 12-31-2018	Reaffirmed 2006 Document Expires 12/31/2018	2 nd Ballot recirculation on 3-26-2018 45 members met quorum, total 113 including guests. Online resolution meeting to be held in >30 days.
C37.04-1999 Cor 1-2009	IEEE Standard for Rating Structure for AC High-Voltage Circuit Breakers Corrigendum 1	HVCB	Stephen Cary	Included on PC37.04 PAR	Document Expires 6/17/2019	Will be pulled into .04 – no update needed
C37.04a-2003	IEEE Standard Rating Structure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis: Amendment 1 Capacitance Current Switching	HVCB	Roy Alexander	Included on PC37.04 PAR	Reaffirmed 2006 Document Expires 12/31/2018	Will be pulled into .04 – no update needed
C37.04b -2008	IEEE Standard for Rating Structure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis Amendment 2: To Change the Description of Transient Recovery Voltage for Harmonization with IEC 62271-100	HVCB	Kirk Smith	Included on PC37.04 PAR	Document Expires 12/31/2018	Will be pulled into .04 – no update needed
C37.06.-2009 ANSI	IEEE Standard for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis - Preferred Ratings and Related Required Capabilities for Voltages Above 1000 V	HVCB	Mauricio Aristizabal	Included on PC37.04 PAR	Document Expires 9/11/2019	Needs corrections to address mistakes in tables 6 and 7 for SLF. HVCB chair to review with C37.04 WG chair if document updated to correct errors.
C37.06.1-2018	Recommended Practice for Preferred Ratings for High-Voltage (>1000 volts) AC Circuit Breakers Designated Definite Purpose for Fast Transient Recovery Voltage Rise Times	HVCB	Sushil Shinde	PAR Expires 12/31/2017	Document Expires 2/6/2028	IEEE C37.06.1-2017 officially published on 2-6-2018.
PC37.09	IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis	HVCB	Xi Zhu	PAR Expires 12/31/2018	Reaffirmed 2007 Document Expires 12/31/2018	2 nd Ballot recirculation closed on 12-21-2017. 94% approval rate. Final Ballot recirculation expected after Spring 2018 meeting. 29 members 52 guests. Discussed approximately 13 comments. Expect recirculation #3 in one month and 4 th Recirculation in July 2018 including alignment with C37.04. Revcom submittal will be in September 2018.
C37.09-1999 /Cor 1-2007	IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis – Corrigendum 1	HVCB	Mauricio Aristizabal	Included on PC37.09 PAR	Document Expires 12/31/2018	Will be pulled into C37.09 – no update needed

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C37.09a-2005 Amendment to C37.09-1999	American National Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis Amendment 1: Capacitance	HVCB	Roy Alexander	Included on PC37.09 PAR	Reaffirmed 2007 Document Expires 12/31/2018	Status .09a will be pulled into C37.09. – no update needed
C37.09b-2010	IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis – Amendment 2: To Change the Description of Transient Recovery Voltage for Harmonization with IEC 62271-100	HVCB	Kirk Smith	Included on PC37.09 PAR	Document Expires 12/8/2020	Will be pulled into .C37.09 – no update needed
C37.010	Application Guide for AC High-Voltage Circuit Breakers > 1000 Vac Rated on a Symmetrical Current Basis	HVCB	Helmut Heiermeier		Document released Document Expires 12/31/2026	Final draft accepted by RevCom. Document Published Spring of 2017. Editorial updates made 6-5-2017 and submitted to WG
PC37.011-2011	IEEE Guide for the Application of Transient Recovery Voltage for AC High-Voltage Circuit Breakers	HVCB	Denis Dufournet		Document Expires 12/31/2021	Ballot closed 1-22-2018, 97% approval rate. Work on one item (modeling of SLF). New recirculation w/changes after Spring Meeting. No meeting room needed for Fall 2018. Document expected to be submitted to Revcom by end of 2019.
PC37.012a	IEEE Application Guide for Capacitance Current Switching for AC High-Voltage Circuit Breakers	HVCB	Roy Alexander	PAR expires 12-31-2021	Document Expires 3/31/2024	PAR applied to amend C37.012 via C37.012a.. WG now formed. Created review group within WG for development of an inrush rating structure.
PC37.012	IEEE Application Guide for Capacitance Current Switching for AC High-Voltage Circuit Breakers	HVCB	Roy Alexander		Document Expires 3/31/2024	Corrigendum for PC370.12-2014-Cor_1 was approved in January of 2016. Task Force to C37.012 established Spring 2016. Roy Alexander to Chair
62271-37-013 (Replaces C37.013 and C37.013a)	Standard for AC High Voltage (rated above 1000 V) Generator Circuit Breakers for Use With Generators Rated 10 MVA or More	HVCB	Mirko Palazzo	10-1-2022	Document Expires 10/1/2025	WG established and work continues for upgrades to the document. Submittal to IEEE and IEC. Document to be discussed Korea in 2018.
62271-37-082-2012	Standard for High-voltage switchgear and control gear - Part 37-082: Measurement of sound pressure levels on AC HVCB	HVCB	Leslie Falkingham		Document Expires 12/31/2023	Done - no update needed at this time
C37.015-2018	IEEE Guide for the Application of Shunt Reactor Switching	HVCB	Anne Bosma	PAR Expires 12/31/2019	Document Expires 3/15/2028	IEEE C37.015-2017 officially published on 3-15-2018.

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PC37.016	Standard for AC High Voltage Circuit Switchers Rated 15.5kV through 245kV	HVCB	Peter Meyer	PAR Expires 12/31/18	Document Expires 12/31/2018	Initial Ballot closed on 3-11-2018 with 90% approval rate. Work Continues and expect document to be done in 2018 and on time.
C37.017-2010	IEEE Standard for Bushings for High-Voltage [over 1000 V (ac)] Circuit Breakers and Gas-Insulated Switchgear	HVCB-GIS	Devki Sharma		Document Expires 9/30/2020	Parts of C37.017 pulled into .04 and .09. A Task Force created to begin to review updates at next meeting in Fall of 2018
C37.081-1981	IEEE Guide for Synthetic Fault Testing of AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis	HVCB	Mauricio Aristizabal		Reaffirmed 2007 Document Expires 12/31/2018	TF meeting held on 4-28-15. Motion was passed to support work of IEC 62271-101 into C37.09 - HVCB to let document expire. References to IEC 62271-101 will be used in C37.09. HVCB let documents expire and they will be automatically withdrawn. Will be listed in system as inactive.
C37.081a-1997	Supplement to IEEE Guide for Synthetic Fault Testing of AC HVCB Rated on a Symmetrical Current Basis	HVCB	Mauricio Aristizabal		Reaffirmed 2007 Document Expires 12/31/2018	TF meeting held on 4-28-15. Motion was passed to support work of IEC 62271-101 into C37.09 - HVCB to let document expire. References to IEC 62271-101 will be used in C37.09. HVCB let documents expire and they will be automatically withdrawn. Will be listed in system as inactive.
C37.083-1999	IEEE Guide for Synthetic Capacitive Current Switching Tests of AC High-Voltage Circuit Breakers	HVCB	Mauricio Aristizabal		Reaffirmed 2007 Document Expires 12/31/2018	TF meeting held on 4-28-15. Motion was passed to support work of IEC 62271-101 into C37.09 - HVCB to let document expire. References to IEC 62271-101 will be used in C37.09. HVCB let documents expire and they will be automatically withdrawn. Will be listed in system as inactive.
C37.10-2011	IEEE Guide for Investigation, Analysis, and Reporting of Power Circuit Breaker Failures	HVCB	Bill Bergman		Document Expires 12/31/2021	No Action needed at this time
PC37.10.1-2000	IEEE Guide for the Selection of Monitoring for Circuit Breakers	HVCB	Dave Mitchell	PAR Expires 12-31-2018	Reaffirmed 2006 Document Expires 12/31/2018	Ballot closed 3-12-2017 First ballot issued 90% approval. A CRC was formed to resolve comments. Document is nearly finished and ready for recirculation. 19 members 33 guests, review comments from 1 st ballot, recirculation within 2 months.

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C37.11	Standard Requirements for Electrical Control for AC High-Voltage (>1000V) Circuit Breakers	HVCB	John Webb		Published 2014 12/31/2024	Task Force created to make updates. Meeting room requested for Fall 2018
PC37.12-2008	IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1000 Volts)	HVCB	John Webb	PAR Expires 12/31/2020	Document Expires 12/31/2018	Review and resolution of comments on the forthcoming recirculation of the latest draft. One session held with 14 members, 47 guests. All comment dispositions reviewed. Editorial error corrected and may or may not need a recirculation. Document to be done in 2018.
PC37.12.1-2007	IEEE Guide for High Voltage (>1000V) Recommended Practice for Circuit Breaker Instruction Manual Content	HVCB	John Webb	PAR Expires 12/31/2020	Document Expires 12/31/2018	Complete the disposition of comments from the initial ballot, Draft 5 reviewed. John Webb. Neil McCord (Vice-chair), Tony Ricciuti (secretary). 11 members, next meeting will be May 30. Recirculate twice before next meeting. May submit revCom by end 2018. This document is a concern if it will not be finished in 2018.
C37.20.6-2007	4.76 kV to 38 kV Rated Grounding and Testing Devices Used in Enclosures	ADSCOM joint HVCB/SA	T. W. Olsen		Document Expires 2026	Done - Published
C37.59-2007	Requirements for Conversion of Power Switchgear Equipment	ADSCOM joint HVCB, SA, and LVSD	Dean Sigmon			
C37.122-2010	Standard for High Voltage Gas-Insulated Substations Rated above 52 kV	Joint SUB/SWG HVCB	Jon Brunke			Done – Published – No update provided at meeting. Will start revision in 2016.
C37.122.3-2011 (was P1712)	IEEE Guide for Sulphur Hexafluoride (SF6) Gas Handling for High-Voltage (over 1000 Vac) Equipment	Joint SUB/SWG HVCB	Gordon van der Zel (Jeff Nelson)		Document Expires 2021	Done - Published

Note: Only those working groups with PAR information are currently active.

6) Reports of AdsCom WG/TF/Study Group

- Capacitance Switching WG (PC37.100.2) Neil McCord

Document approved by AdsCom, scheduled for publication on 5-18-2018.

- Common Requirements WG (C37.100.1) Keith Flowers

Mike Skidmore presented updates to Guests and Members of HVCB on the status of C37.100.1. Many HVCB members and Guests missed the AdsCom meeting held on 4-23-18. The chair reviewed the AdsCom meeting minutes from the 4-23-18. The information is available under the IEEE PES Switchgear AdsCom meeting minutes website as follows:
<http://www.ewh.ieee.org/soc/pes/switchgear/minutes/2018-1/S18index.html>

Summary discussed:

C37.100.1 incorporates significant content from IEC 62271-1, exceeding percentage of copyrighted material allowed by IEC. IEC has refused to grant permission to use this copyrighted material, meaning that the new version of C37.100.1 will not be reviewed or approved by REVCOM.

Update from Doug Edwards from ADSCOM meeting held on 4-23-18

Chair reviewed presentation explaining IEC stance and present situation. Document had 85% content from IEC 62271-1, limit is 10%. C37.100.1-2007 is still valid. Series of AdsCom meetings held in late 2017 and early 2018. Four options were presented, most chairs decided to refer to 2007 version, others chose including the contents of C37.100.1 in their document.

Per Doug Edwards:

For Sub-Committee Chairs, I have also provide minutes to you (some may get duplicate emails as you were at the meeting) to share details of the discussions as this may affect your WG activities.

Summary – Recommendation for AdsCom is to establish a new PAR for updates and ballot of C37.100.1 based on the 2007 version of the document with the updates to references only.

Erin Spiewak: There is no reaffirmation process available today at IEEE. No changes are needed but reviewers need to have a chance to comment. Response to comments can explain that changes and improvement can be made later. One must carefully including material for C37.100.1, with proper citation and verify that content is not IEC. Erin has copyright review that indicates what sections were considered as taken from IEC so groups can check.

Chair for recirculation has been chosen. Need Vice-chair and Secretary

- Standard for Definitions WG (C37.100.5) Tom Mulcahy

C37.100.5 was approved as a new standard by the IEEE-SA Standards Board on 15 February 2018

- TF for Alternative Gases to SF6 Nenad Uzelac

Work finished. Technical Report for “IEEE Alternative Gases Task Force” published. One meeting held on 4-25-18 and plan is to submit a PAR for addition work.

- TF to review Shunt Reactor (inductive load) Switching Sushil Shinde

Work continues for Task Force to review “Shunt Reactor (Inductive Load) Switching for C37.09.” Data collected for survey to obtain application parameters.

- Task force for innovation Nenad Uzelac

First meeting scheduled for spring 2018. Objective is to review new and emerging technologies. Task Force will not be involved in standard development.

7) Reports of CIGRE

- a) WG A3.30 Overstresses in S/E equipment. Technical brochure will be issued in 2018.

Denis Dufournet

- b) WG A3.31 NCIT with digital output. Draft technical brochure ready for submission to SC A3.

Denis Dufournet

- c) WG A3.32 Non-intrusive methods for condition assessment for distribution and transmission equipment. Technical Brochure scheduled second quarter 2018.

Denis Dufournet

- d) WG A3.33 Experience for equipment for series/shunt compensation. Technical Brochure 693 published.

Denis Dufournet

- e) WG A3-35 “Guidelines and best practices for the commissioning and operation of controlled switching projects”. Publication scheduled in 2018

Denis Dufournet

- f) WG A3-36 “Application and Benchmark of Multi Physics simulations and engineering tools for temperature rise calculations”. Technical Brochure planned for October 2018

Denis Dufournet

- g) WG A3-37 “System conditions for and probability of Out-of-Phase. Technical Brochure 716 published in 2018.

Denis Dufournet

- h) WG A3-38 “Shunt Capacitor Switching in distribution and transmission systems: Verification by tests and performance in service”.

Anne Bosma / Edgar Dullni

- i) A3-39 “Field Experience with and Reliability of Surge Arresters.

Denis Dufournet

- j) New WG A3-40 Technical requirements and field experiences with MV DC switching equipment

Denis Dufournet

- k) New WG A3-41 Interrupting and switching performance with SF6 free switching equipment

Denis Dufournet

- l) New WG A3-42 Failure analysis of recent AIS instrument transformer incidents

Denis Dufournet

The future Chair of CIGRE SC A3 will be Nenad Uzelac, starting in August 2018.

Cigre Updates go to <https://cigre-usnc.tamu.edu/study-committees/>

Mike Skidmore

8) **Old Business**

- a) <https://development.standards.ieee.org/my-site/open-ballot-invitations>
- b) Senior membership - 102 senior members total in switchgear.

9) **New Business**

- a) Presentation Reminder – “HVDC Development and Applications”

(Thursday April 26, 2018 (11:45 AM to 3:30 PM))

Joanne Hu / Renee Smeets

- b) Create a Task Force to review and update C37.11. Request from Neil McCord. John Webb to remain as chair.

Motion: To create a Task Force to review updates needed for C37.11-2014. (Standard Requirements for Electrical Control for AC High-Voltage (>1000V) Circuit Breakers)

**Move: Neil McCord
Second: John Webb
Unanimous approval**

Mike Skidmore

- c) C57.142 - Mitigation of Switching Transients Induced by Transformers
David Caverly
- d) Solicit help for Fellows Coordinator
Mike Skidmore
- e) Solicit help for TCPC Coordinator
Mike Skidmore

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Technical Committee Program Chair (TCPC)

- Develop and coordinate technical programs for the Committee for Power & Energy Society meetings, conferences, and joint meetings, including paper, poster and panel sessions and tutorials as appropriate.
- Administer the review of Proceedings Papers for Power & Energy Society meetings, conferences, and joint meetings.
- Represent the Committee on the IEEE PES Technical Council Technical Sessions Committee which meets twice per year. Participation may be in-person or via teleconference.
- Attend all Switchgear Committee ADSCOM meetings and submit a TCPC report
- This is a standing position and you can serve in this position until a successor is appointed.



- f) Subcommittee officer rotation ends beginning of 2019
Mike Skidmore

Chair: Mike Skidmore
Secretary: Victor Hermosillo

g) Task Force to review updates for C37.017.

Motion: To create a Task Force to review updates needed for C37.017. IEEE Standard for Bushings for High-Voltage [over 1000 V (ac)] Circuit Breakers and Gas-Insulated Switchgear.

Move: Devki Sharma.

Second: John Webb

Unanimous approval

Devki Sharma to remain as Chair and provide updates in Fall of 2018 meeting.

10) **Future Meetings**

- a) Fall 2018: Kansas City Marriott Downtown, Kansas City, MO - October 14th to 18th, 2018
- b) Spring 2019: Hilton, Burlington, VT - April 28th to May 1st, 2019
- c) Fall 2019: Catamaran Resort, San Diego, CA – October 6th to 10th, 2019
- d) Spring 2020: Peppermill Resort, Reno, NV – May 4th to 8th, 2020
- e) Fall 2020: Sheraton Sundance Square, Fort Worth, TX – October 4th to 8th, 2020
- f) Spring 2021: Hilton Charlotte University Place, Charlotte, NC – April 18th to 23rd 2021

11) **Adjourn**