

1) **Introduction of Members and Guests**

Mike Skidmore / Victor Hermosillo

Member 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 Charlotte, NC

Submitted after meeting posted online. Minutes approved.

Move: **Sushil Shinde**

Second: **Roy Alexander**

**Unanimous Approval**

3) **Membership**

	ROLE AS MEMBERS	ROLE AS GUESTS	ROLE AS CORRESPONDING MEMBERS	REQUIRED* FOR QUORUM COUNT	TOTAL
HVCB Committee Roster	44	120	12	≥ 50% membership at meeting (≥ 22 members)	176
Attendance Recorded Portland, ME	<b>34</b>	<b>35</b>	<b>1</b>	<b>78%</b>	<b>69</b>

\*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 October 27<sup>th</sup>, 2017.

5) **Reports of Working Groups**

a) **Technical Paper Reviews**

Kirk Smith

**There have been no technical papers submitted.**

b) **WG Activities**

HVCB Switchgear Subcommittee Agenda, 10-11-2017 Portland, ME

---

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	Submitted request for PAR extension by one year. Recirculation after modifications. Ballot opened 3-15-17 and closed 4-14-17. 75% approval not achieved from latest ballot. PAR extension for 12-31-18 submitted per Chair. Ballot recirculation before Spring 2018
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.
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	HVCB	Sushil Shinde	PAR Expires 12-31-2017	Document Expires 12/31/2018	Document second recirculation on 4-12-17, 93% approval. Only one technical comment remained, if accepted then recirculation needed. Submit to RevCom and request PAR extension (if needed) by deadline October 16 <sup>th</sup> , 2017.

HVCB Switchgear Subcommittee Agenda, 10-11-2017 Portland, ME

---

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	Discussed unresolved comments after first recirculation Done in April with 85% approval rate. Concluded all dispositions in Portland meeting. Plan second recirculation November 2017. Plan is 1-2 additional recirculations to align with .04 if needed. Document to be sent to IEEE in two months. Last recirculation and submit to RevCom after Spring 2018 meeting.
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
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
C37.011-2011	IEEE Guide for the Application of Transient Recovery Voltage for AC High-Voltage Circuit Breakers	HVCB	Denis Dufournet		Document Expires 12/31/2021	Draft document provided to working group on 9-12-17 for review. First meeting as WG in Portland. Document mature enough for ballot (already in 7 <sup>th</sup> draft). Request HVCB SubCom to go to ballot. Voted unanimously to go for ballot before Spring 2018.
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 for to amend C37.012 via C37.012a. PAR approved before the meeting. WG now formed. Created review group within WG for development of an inrush rating structure. Prepared and circulated rough first draft. Plan to be ready for ballot by Spring 2018 meeting.

HVCB Switchgear Subcommittee Agenda, 10-11-2017 Portland, ME

---

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	Lukas Zehnder reported: meeting with 13 members. Discussed applications not covered: out of phase condition w/capacitor, two generator case, and offshore windfarm case. Discussed generator with additional components, introduction into standard. Coordination ratings between components. Input from STL group. Discussion with switchgear assemblies C37.20.2 for possible scope infringement if other components are included. Eldridge Byron explained situation, address with IEC 62271-200. Discussion to be held at AdsCom and TF. HVCB may need representation in review task force. If necessary John Webb offered to volunteer.
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
PC37.015-2009	IEEE Guide for the Application of Shunt Reactor Switching	HVCB	Anne Bosma	PAR Expires 12/31/2019	Document Expires 12/9/2019	Anne not at meeting but provided update submitted by e-mail. Ballot recirculation – 8-7-2017. Meeting not held in Portland. Documents meets all requirements. Plan to submit to RevCom Fall of 2017.
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	Draft document completed with exception of aligning with latest drafts of C37.04 and C37.09, which are forthcoming. Will go to ballot by end of 2017, request approval to go to ballot. HVCB and C37.016 members. All in favor none opposed.

HVCB Switchgear Subcommittee Agenda, 10-11-2017 Portland, ME

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 to be pulled into .04 and .09. no action needed at this time
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. <b>HVCB let documents expire and they will be automatically withdrawn. Will be listed in system as inactive.</b>
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. <b>HVCB let documents expire and they will be automatically withdrawn. Will be listed in system as inactive.</b>
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. <b>HVCB let documents expire and they will be automatically withdrawn. Will be listed in system as inactive.</b>
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	<b>Ballot closed 3-12-2017</b> <b>First ballot issued w/90% approval. A CRC was formed to resolve comments. Document is nearly finished and ready for recirculation. Plan is to recirculate before Spring of 2018. Comment from floor could not be voted because there was no quorum. Dave will need to go to electronic ballot. Chair to check roster and membership status.</b>

HVCB Switchgear Subcommittee Agenda, 10-11-2017 Portland, ME

---

C37.11	Standard Requirements for Electrical Control for AC High-Voltage (>1000V) Circuit Breakers	HVCB	John Webb		Published 2014 12/31/2024	No updated needed at this time. Document published.
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	Finished recirculation, reviewed comments. Implement and recirculate. RevCom prior to Fall 2018 meeting. Request permission after concluding ballot. Voted all in favor and none opposed.
PC37.12.1-2007	IEEE Guide for High Voltage (>1000V) Circuit Breaker Instruction Manual Content	HVCB	John Webb	PAR Expires 12/31/2020	Document Expires 12/31/2020	Ballot closed 10-15-16. Crated a CRC for resolution of comments. Finished their first ballot. Comment resolution (~140). Need to appoint new chair. M. Skidmore appoints John Webb. Neil McCord (Vice-chair), Tony Ricciuti (secretary) added.
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  
John Webb has carried out tasks in absence of Neil. Two re-circulations and target completion by end of 2017.

- Common Requirements WG (C37.100.1) David Stone  
David Stone working through copyright issues with IEC, expects resolution soon.

- Standard for Definitions WG (C37.100.5) Tom Mulcahy  
Ballot re-circulation – 9-26-2017 - Recirculated ballot twice. Three comments from last recirculation. Depending on resolution, another recirculation may be needed. Chair will seek permission for publication.

- TF for Alternative Gases to SF6 Nenad Uzelac  
Document near completion. Next action to establish working group, substations will work on handling and switchgear will work on test and performance requirements.

- TF to review Shunt Reactor (inductive load) Switching Sushil Shinde  
First meeting and objectives discussed. Concerns with field experience for endurance switching. Reviewed test procedure from IEC 62271-110 and C37.015. Plan to design and distribute a survey to obtain application parameters, circulate before Spring 2018 meeting.

- Task force for innovation Nenad Uzelac  
Todd Irwin attended. Task force to review scope. Revision and approval of new subcommittee. First meeting spring 2018. Objective is to review new and emerging technologies. 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 2017.

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. Draft circulated to SC A3 in December 2016**

Denis Dufournet

- e) **JWG A3/B4.34 Technical requirements and specifications of state-of-the-art DC switching equipment. TB published in May 2017.**

Jingxuan (Joanne) Hu

- f) **WG A3-35 “Guidelines and best practices for the commissioning and operation of controlled switching projects”. Publication scheduled end of 2017**

Denis Dufournet

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

Denis Dufournet

- h) **WG A3-37 “System conditions for and probability of Out-of-Phase. Technical Brochure planned end of 2017.**

Denis Dufournet

- i) **WG A3-38 “Shunt Capacitor Switching in distribution and transmission systems: Verification by tests and performance in service”. Meeting in Portland, October 2017.**

Anne Bosma / Edgar Dullni

- j) **New WG A3-39 “Field Experience with and Reliability of Surge Arresters. Next meeting in November 2017.**

Denis Dufournet

- k) **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 +15 in 2015, +16 in 2016, 102 senior members total in switchgear.

## 9) **New Business**

- a) **Discussion- Concern from SA (Switchgear Assemblies) - Scope infringement for IEC/IEEE 62271-37-013:2015 IEEE/IEC International Standard for High-Voltage**



Switchgear and Controlgear - Part 37-013: Alternating-Current Generator Circuit-Breakers and C37.20 (SA) standards

Details to be discussed between TF for SA and HVCB WG for 62271-37-013.  
Additional details discussed in WG activities table above.

Mike Skidmore

- b) Presentation Reminder – “Everything you wanted to know about high voltage circuit breakers but were afraid to ask”  
(Thursday October 12, 2017 (11:45 AM to 3:30 PM)) Denis Dufournet
- c) Subcommittee officer rotation ends 2019 Mike Skidmore

Chair: Mike Skidmore  
Secretary: Victor Hermosillo

**10) Future Meetings**

- a) Spring 2018: Disney’s Contemporary Resort, Lake Buena Vista, FL - April 22<sup>nd</sup> to 27<sup>th</sup>, 2018
- b) Fall 2018: Kansas City Marriott Downtown, Kansas City, MO - October 14<sup>th</sup> to 18<sup>th</sup>, 2018
- c) Spring 2019: Hilton, Burlington, VT - April 28<sup>th</sup> to May 1<sup>st</sup>, 2019
- d) Fall 2019: Catamaran Resort, San Diego, CA – October 6<sup>th</sup> to 10<sup>th</sup>, 2019
- e) Spring 2020: Peppermill Resort, Reno, NV – May 4<sup>th</sup> to 8<sup>th</sup>, 2020
- f) Fall 2020: Sheraton Sundance Square, Fort Worth, TX – October 4<sup>th</sup> to 8<sup>th</sup>, 2020

**11) Adjourn**