

Meeting Minutes

C37.01 Standard for HVDC Circuit Breakers

Chair: Steven Chen
Vice Chair: Paul Yang
Secretary: Carl Schuetz
Time: 8:00 am – 9:45 am
Location: Oklahoma City, OK
Participants: 37 participants, including 17 voting members

1. Agenda and Topics

- Introduction of members and guests
- IEEE SA patent policy review
- IEEE SA copyright policy review
- Progress update
- Discussion
- Next Steps

2. Introduction

Welcome and introduction by Steven Chen, Chair of the WG. The roster is attached in the end of this meeting minutes as Attachment 1.

3. Review of IEEE SA Patent and Copyright Policies

IEEE SA Patent and copyright policies were presented and reviewed. The chair asked if anyone knew of any essential patents or copyright claims.

No patents or copyright claims were identified.

4. Approval of meeting minutes from S24

Quorum check (20 members needed): 17 members present - no quorum achieved.

Motion:
Second:

5. Approval of F24 agenda

Motion:
Second:

No motion for approval could be made since there was no quorum.

6. Progress Update

The chair provided a summary of the need to create study groups as there are different operational aspects of a high-voltage DC circuit breaker from an AC high-voltage circuit breaker: existing installations and operational requirements that were made, individuals knowledgeable in MOSA application and power electronic performance.

The chair also stated that several online meetings will be scheduled in addition to the in-person meetings. It is anticipated that since there are many international voting members of the working group, document approvals could only be achieved during online meetings.

A PAR extension has been applied for and is requesting a three year extension. A WG letter ballot to approve the PAR extension was e-mailed to WG voting members on October 18, 2024. The ballot results recorded were 32 yes to request a PAR extension out of total 34 voting members with 2 without responding to the letter.

The chair presented the expected document schedule that includes development work starting in earnest with the next online meeting.

7. Discussion

An attendee asked if this document would coordinate with IEC. The chair responded that at the present time there is no plan to undergo a dual logo standard. Also, the IEC is at the final stage of DC circuit breaker standard document type development.

The chair shared three rating requirements specific to DC circuit breakers for the purpose of discussion generation. They are as follows:

Rated max temporary overload current

In existing installations the converter limits the current which makes defining standardized requirements difficult. At a past online meeting it was decided to remove the temporary overload current requirement. However, temporary overload currents have been added in the continuous current requirements.

Rated energy during short circuit breaking operation

Surge arresters (MOSA) are required within the DC CB to absorb the commutation energy during current interruption. The surge arrester ratings, testing requirements and construction features will need to be developed.

A suggestion was made by an attendee to involve other committees such as SPDC and Substation for assistance in specification of those components not under the traditional scope of responsibility of SWG COM.

An attendee discussed the need for energy limiting requirements specific to the DC circuit breaker versus the use of existing surge arrester test requirements applied to the circuit

breaker.

Another attendee expressed an opinion that energy absorption requirements should be called as such instead of naming MOSA, as that would limit the device type used to absorb the commutation energy.

Rated operating duty (standard duty cycle)

The operating duty will depend on the surge absorption capability and cooling rate that it has for the surge absorption element.

The chair shared that DC de-ionization time reference papers reviewed stated times that varied from 200 to 400 milli-seconds.

An attendee asked how many reclose attempts are thought to be needed. The chair responded that at the present time only one reclose attempt, O-t-CO.

An attendee asked if two operating duties would be offered, perhaps one for cable applications (where reclosing would not be desired) and one with reclosing. The chair answered affirmatively.

An attendee asked if the reclosing duty is based on a temporary fault such as lightning. The chair answered affirmatively.

8. Document Next Steps

Plan for further, multiple online meetings to discuss progress and further work needed before the next in-person meeting scheduled in April 2025.

Report submitted by: Steven Chen and Carl Schuetz

Attachment 1 - Attendance

First Name	Last Name	Affiliation	Role
Koustubh	Ashtekar	Siemens Industry, Inc	Member
Ganesh	Balasubramanian	Eaton Corporation	Guest
Francois	Biquez	GE Vernova	Member
Arjan	Bronsveld	Hitachi Energy Sweden	Guest
Jared	Cantu	OMICRON Electronics	Guest
Steven	Chen	Eaton Corporation	Chair
Lissy	Diaz	FPL	Guest
Federico	di Michele	CESI	member

Leslie	Falkingham	Vacuum Interrupters Limited	Member
Sergio	Flores	Schneider Electric	Member
Judi	Haasz	IEEE SA	IEEE Staff
Christian	Heinrich	Siemens AG	Member
Victor	Hermosillo	GE Grid Solutions	Member
Tyler	Holp	Eaton Corporation	Guest
Bill	Hurst	GE Renewable Energy	Member
Riyad	Kechroud	GE Vernova	Member
Dwight	Krause	Black & Veatch	Member
YongWoo	Lee	Korea Electrotechnology R.I.	Guest
Chunming	Ma	Burns & McDonnell	Guest
Peter	Mapp	EMSPEC	Guest
Sumitabha	Pal	Schneider Electric	Member
Damian	Podgorski	Sargent & Lundy	Guest
Nicholas	Redden	Georgia Transmission	Guest
Frank	Richter	50Hertz Transmission GmbH	Guest
Leonel	Santos	Schneider Electric	Member
Daniel	Schiffbauer	Toshiba International	Guest
Carl	Schneider	Schneider Electric	Guest
Carl	Schuetz	American Transmission Company	Secretary
Dustin	Sullivan	Hubbell Power System	Member
Dragan	Tabakovic	Hubbell Power System	Guest
Timothy	Terry	Meiden America Switchgear	Guest
Francois	Trichon	Schneider Electric	Guest
Nenad	Uzelac	G&W Electric	Guest
Jeffrey	Ward	Doble Engineering Company	Member
John	Webb	ABB	Member
Jan	Weisker	Siemens Energy	Guest
Wei	Zhang	Southern Company	Guest