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BUREAU OF INDIAN STANDARDS

MINUTES

Name of the Committee	No. of Meeting	Day	Date	Time	Venue
HVDC Power Systems Sectional Committee, ETD 40	18th	Friday	24 Nov 2023	1030 hrs.	WebEx (Online)

CHAIRMAN: Shri B B Mukherjee

MEMBER SECRETARY: Mr. Sandeep Khokar

Organization	Member
Power Grid Corporation of India, Gurugram	Shri B. B. Mukherjee (Chairperson)
Bureau of Indian standards	Shri Sandeep Khokar (Member Secretary)
ABB India Limited, Bengaluru	Shri Biplob Sardar
Bharat Heavy Electrical Limited, New Delhi	Shri R K SINGH
Central Electricity Authority, New Delhi	Shri Bhanwar Singh Meena
Central Power Research Institute, Bengaluru	Dr. J. Sreedevi
Central Power Research Institute, Bengaluru	Dr P. Rajamani
Haryana Vidyut Prasaran Nigam Limited, Panchkula	Er. Vikas Malik
Indian Electrical and Electronics Manufacturers Association, New Delhi	Shri Rishabh Joshi
Indian Electrical and Electronics Manufacturers Association, New Delhi	Mr. Navdeep Singh
Indian Institute of Technology Bombay, Mumbai	Shri Himanshu J. Bahirat
Indian Institute of Technology Roorkee, Roorkee	Shri Biswarup Das
Power Grid Corporation of India, Gurugram	Shri Deepak M Roy
Siemens Limited, Mumbai	Shri Nileshwer
Siemens Limited, Mumbai	M. Karikalan
Siemens Limited, Mumbai	Shri Niket Jain
Solar Energy Corporation of India Limited, New Delhi	Dr. Prashant Upadhyay
Solar Energy Corporation of India Limited, New Delhi	Shri Kaustuv Roy
Sterlite Technologies Limited, Pune	Shri Sandip Maity

Item 0 WELCOME AND OPENING REMARKS BY THE CHAIRMAN

The Chairperson, Shri B B Mukherjee welcomed all participant present in the committee meeting. He request all the members to actively participate in the process of standardization and the committee meeting started with a brief round of introduction of the members.

Item 1 CONFIRMATION OF THE MINUTES OF THE LAST MEETING

The committee confirmed the minutes of the 17th meeting of HVDC Power Systems Sectional Committee, ETD 40 held on 20-01-2023.

Item 2 COMPOSITION OF SECTIONAL COMMITTEE, ETD 40

Committee reviewed the present composition of HVDC Power System Sectional Committee ETD 40 and noted the information given in the agenda.

Item 3 PROGRAM OF WORK OF ETD 40

Sl.	Indian Standard	Based on IEC	Title	Latest IEC	Decision Taken in Last meeting	Action Taken	Decision Taken
1.	IS 14801:2021	IEC 60633(2019)	Terminology for high voltage direct current (HVDC) transmission	IEC 60633 : 2019	-	-	
2.	IS 14902 (Part 1):2021	IEC TR 60919-1 : 2020	Performance of high-voltage direct current (HVDC) systems with line-commutated converters – Part 1: Steady-state conditions(First Revision)	IEC TR 60919-1 : 2020	-	-	
3.	IS	IEC/TR	Performance of	IEC/TR	The		

	IS 14902 (Part 2):2013 +Amd 1 : 2020	60919-2:2008 +AMD1:2015	high-voltage direct current (HVDC) systems with line-commutated converters -- Part 2: Faults and switching (First Revision)	60919-2:2008 +AMD1:2015 + AMD2:2020	committee decided to send AMD2 : 2020 to IEC TR 60919-2 : 2008 for printing.	This document is under print.	The committee noted the information given in the agenda.
4.	IS 14902 (Part 3):2013 + Amd 1 : 2020	IEC/TR 60919-3:2009 +AMD1:2016	Performance of high-voltage direct current (HVDC) Systems with line-commutated converters – Part 3: Dynamic conditions (First Revision)	IEC/TR 60919-3:2009+AMD1:2016+AMD2 :2021	AMD 2 has been published in 2021. Committee decided to Wide Circulate AMD 2 for 2 months and if No comments received than doc may be sent for printing with approval of Chairman.	No comments were received Document may be sent for printing	The committee decided to send the document for printing.
5.	IS 14911 (Part 1) : 2020	IEC 60700-1 : 2015	Thyristor valves for high-voltage direct current (HVDC) power transmission: Part 1 Electrical Testing (first revision)	IEC 60700-1:2015+AMD1 :2021	AMD 1 has been published in 2021. Committee decided to Wide Circulate AMD 1 for 2 months and if No comments	No comments were received Document may be sent for printing	The committee decided to send the document for printing.

					received than doc may be sent for printing with approval of Chairman.		
6.	IS 15597:2005	IEC 61803:1999	Determination of power losses in high voltage direct current (HVDC) converter stations	IEC 61803:2020	Sent in wide circulation as Doc ETD 40 (16861) No comments were received. Committee Decided Doc to be sent for print.	This document is under print.	The committee noted the information given in the agenda.
7.	IS 15617:2017	IEC 61954:2011+Amd 1 : 2013	Static var compensators (Svc) testing of thyristor valves (First Revision)	IEC 61954 : 2021	3rd edition of IEC 61954 published in 2021. Committee decided to Wide Circulate 3rd edition of IEC 61954 for 2 months and if No comments received	No comments were received.	The committee decided to send the document for printing.

					than doc may be sent for printing with approval of Chairman		
8.	IS 16071-1 : 2021	IEC TR 62001-1 : 2016	High-voltage direct current (HVDC) systems - Guidance to the specification and design evaluation of AC filters - Part 1: Overview	IEC TR 62001-1 : 2021	2nd edition of IEC 62001-1 published in 2021. Committee decided to Wide Circulate 2nd edition of IEC 62001- 1 for 2 months and if No comments received than doc may be sent for printing with approval of Chairman.	No comments were received . Docume nt may be sent for printing	The committee decided to send the document for printing.
9.	IS 16071-2 : 2021	IEC TR 62001-2 : 2016	High-voltage direct current (HVDC) systems - Guidance to the specification and design evaluation of AC filters - Part 2: Performance	IEC TR 62001-2 : 2016	-	-	

10.	IS 16071-3 : 2021	IEC TR 62001-3 : 2016	High-voltage direct current (HVDC) systems - Guidance to the specification and design evaluation of AC filters - Part 3: Modelling	IEC TR 62001-3 : 2016	-	-	
11.	IS 16071-4 : 2021	IEC TR 62001-4 : 2016	High-voltage direct current (HVDC) systems - Guidance to the specification and design evaluation of AC filters - Part 4: Equipment	IEC TR 62001-4 : 2021	2 nd edition of IEC 62001- 4 published in 2021. Committee decided to Wide Circulate 2nd edition of IEC 62001- 4 for 2 months and if No comments received than doc may be sent for printing with approval of Chairman.	No commen ts were received Docume nt may be sent for printing	The committee decided to send the document for printing.
12.	IS 16075:20 13+AM D1:2022	IEC 62501:20 09+AM D1:2014 +AMD2: 2017 CSV	Voltage source d converter (VSC) Valves for high voltage direct current (HVDC) Power transmission – electrical testing	IEC 62501:2009 + AMD1:2014 +AMD2:201 7 CSV	-	-	

13.	IS 16076:2 0 13	IEC 61975:2 0 10	High-voltage direct current (HVDC) installations – system tests	IEC 61975: 2010+AMD 1:2016 CSV	Committee Decided Doc to be sent Doc ETD 40 (18809) for printing.	This docume nt is under print.	The committee noted the information given in the agenda.
14.	IS 16665: 2017+A MD1:20 21	IEC TS 61973: 2012+A MD1:20 19	High voltage direct Current (HVDC) Substation audible noise	IEC TS 61973:2012 +AMD1:201 9	-	-	-
15.	IS 16666: 2017	IEC/T R 62544: 2011	High-voltage direct current (HVDC) systems - Application of active filters	IEC TR 62544:2011 +AMD1:201 6+AMD2:20 20 CSV	Committee Decided to send IEC AMD1:20 16 +AMD 2: 2020 CSV	This docume nt is under print.	The committee noted the information given in the agenda.
16.	IS 16667: 2018	IEC TR 62543: 2011	High-voltage direct current (HVDC) power transmission using voltage sourced converters (VSC)	IEC TR 62543:2011 +AMD1:201 3+AMD2:20 17 CSV	Wide Circulate 2nd edition of IEC 62543 for 2 months and if No comments received than doc may be sent for printing with approval of Chairman.	No commen ts were received . Docume nt may be sent for printing	The committee decided to send the document for printing.

17.	IS 17575:2 0 21	IEC TR626 8 1:2014	Electromagnetic performance of high voltage direct current HVDC overhead transmission lines	IEC TR 62681:2022	Committee Decided to Wide Circulate 2nd edition of IEC 62543 for 2 months and if No comments received than doc may be sent for printing with approval of Chairman	No comments were received . Document may be sent for printing	The committee decided to send the document for printing.
18.	IS 17576:2 0 21	IEC TR 62978:20 17	HVDC installations Guidelines on asset management	IEC TR 62978:2017	-	-	
19.	IS 17577:2 0 21	IEC TR 62672:20 18	Reliability and availability evaluation of HVDC systems	IEC TR 62672:2018	-	-	
20.	IS 17590- 1:2021	IEC TS 63014-1: 2018	High voltage direct current HVDC power transmission System requirements for DCside equipment Part 1: Using linecommutated converters	IEC TS 63014- 1:2018	-	-	
21.	IS 17591:20 21	IEC TR 63127:20 19	Guideline for the system design of HVDC converter stations with line-commutated converters	IEC TR 63127:2019	-	-	

22.	IS 17775- 1:2021	IEC TR 63179- 1:2020	Guideline for planning of HVDC systems: Part 1 HVDC systems with line- commutated converters	IEC TR 63179- 1:2020			
23.	IS 17860:2 0 22	IEC 62344:2 0 13	Design of earth electrode stations for high-voltage direct current HVDC links General guidelines	IEC 62344:2022	Committee Decided to Wide Circulate 2nd edition of IEC 62344 for 2 months and if No comments received than doc may be sent for printing with approval of Chairman.	No commen ts were received . Docume nt may be sent for printing	The committee decided to send the document for printing.
24.	IS/IEC 60071- 5:2014	IEC 60071- 5:2014	Insulation co- ordination - Part 5: Procedures for high- voltage direct current (HVDC) converter stations	Replaced by IEC 60071- 11:2022 and IEC 60071- 12:2022	IEC 600 71-5:2014 replaced by following standards IEC 60071- 11:2022 Insulation co- ordination - Part 11 : Definitions , principles and rules for HVDC	To be discusse d in the meeting.	Committee decided to superseed IS/IEC 60071- 5: 2014 by IEC 60071-11: 2022 and to Wide circulate for 60 days. If no comments received during wide circulation then document will be sent for printing with the approval of chairperson.

					<p>system. IEC 60071- 12:2022 Insulation co- ordination - Part 12: Application guidelines for LCC HVDC converter stations.</p> <p>Committee suggest to internal review of both standards and will discuss in next sectional meeting</p>		
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Item 4 Standards Published under TC115

TC 115 Publications

Sl no	Reference	Title	<i>Decision Taken in the last meeting</i>	Action Taken	Decision Taken
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1.	IEC TR 63363-1:2022	Performance of voltage Sourced converter (VSC) based high-voltage direct current (HVDC) transmission - Part 1: Steady-state conditions	Committee decided to Wide Circulate IEC 63363-1 for 2 months and if No comments received than doc may be sent for printing with approval of Chairman.	No comments were received. Document may be sent for printing	The committee decided to send the document for printing.
2.	IEC TS 63291-1:2023	High voltage direct current (HVDC) grid systems and connected converter stations – Guideline and parameter lists for functional specifications – Part 1: Guideline		IEC TC 115 has been published IEC TS 63291-1:2023. The committee may discuss.	Committee decide to wide circulate the document for 60 days.
3.	IEC TS 63291 2:2023	High voltage direct current (HVDC) grid systems and connected converter stations – Guideline and parameter lists for functional specifications – Part 2: Parameter lists		IEC TC 115 has been published IEC TS 63291-2:2023. The committee may discuss	Committee decide to wide circulate the document for 60 days.

Item 5 Standards Published under SC 22F

Sl no.	Reference	Title	Decision Taken in the last meeting	Action Taken	Decision Taken
1.	<u>IEC</u> <u>6</u> <u>0700-</u> <u>2:2016+</u> <u>AMD1</u> <u>:2021</u> <u>(CSV)</u>	Thyristor valves for high voltage direct current (HVDC) power transmission - Part 2: Terminology	Committee finalized the document and sent for printing.	This document is under print.	The committee noted the information given in the agenda.
2.	<u>IEC</u> <u>62747:20</u> <u>14+A</u> <u>MD1:20</u> <u>19 CSV</u>	Terminology for voltage-sourced converters (VSC) for high-voltage direct current (HVDC) systems	Committee discussed the comment and decided following paragraph may be added in the National Annexure Read (see Figure 4) as (see	This document is under print.	The committee noted the information given in the agenda.

			Figure 5) and Read (see Figure 5) as (see Figure 4) in		
3.	<u>IEC</u> <u>6</u> <u>2751-</u> <u>1:2014+</u> <u>AMD1</u> <u>:2018</u> <u>CSV</u>	Power losses in voltage sourced converter (VSC) valves for high-voltage direct current (HVDC) systems - Part 1: General requirements	Committee finalized the document and sent for printing.	This document is under print.	The committee noted the information given in the agenda.
4.	<u>IEC</u> <u>6</u> <u>2751-</u> <u>2:2014+</u> <u>AMD1</u> <u>:2019</u> <u>CSV</u>	Power losses in voltage sourced converter (VSC) valves for high-voltage direct current (HVDC) systems - Part 2: Modular multilevel converters	Committee finalized the document and sent for printing.	This document is under print.	The committee noted the information given in the agenda.
5.	<u>IEC</u>	Fire prevention measures on converters for high-voltage direct current (HVDC) systems, static var compensators (SVC) and flexible AC transmission systems (FACTS) and their valve halls	Committee finalized the document and sent for printing.	This document is under print.	The committee noted the information given in the agenda.

6.	<u>IEC 62823:2015+A MD1:2019 CSV</u>	Thyristor valves For thyristor controlled series capacitors (TCSC) - Electrical testing	Committee finalized the document and sent for printing.	This document is under print.	The committee noted the information given in the agenda.
7.	<u>IEC 62927:2017</u>	Voltage sourced converter (VSC) valves for static synchronous compensator (STATCOM) - Electrical testing	Committee finalized the document and sent for printing.	This document is under print.	The committee noted the information given in the agenda.
8.	<u>IEC TR 63262:2019</u>	Performance of unified power flow controller (UPFC) in electric power systems	Committee finalized the document and sent for printing.	This document is under print.	The committee noted the information given in the agenda.
9.	IEC 60700-3:2022	Thyristor valves for high voltage direct current (HVDC) power transmission - Part 3: Essential ratings (limiting values) and characteristics	Committee Decided to Wide Circulate IEC 60700-3:2022 for 2 months and if No comments received than doc may be sent for printing with approval of Chairman.	No comments were received. Document may be sent for printing	The committee decided to send the document for printing.
10.	IEC TR 62001-5:2021	High-voltage direct current (HVDC) systems - Guidance to the specification and design evaluation of AC filters - Part 5: AC side harmonics and appropriate harmonic limits for HVDC systems with voltage sourced converters (VSC)	Committee Decided to Wide Circulate IEC 62001-5:2021 for 2 months and if No comments received than doc may be sent for printing with approval of Chairman	No comments were received. Document may be sent for printing	The committee decided to send the document for printing.

11.	IEC TR 63259:202 2	Water cooling systems for power electronics used in electrical transmission and distribution systems	Committee decided to wide circulated the document and will discussed on basis of comment received on the document.	No comments were received. Document may be sent for printing	The committee decided to send the document for printing.
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**Item 6 IDENTIFICATION OF RESEARCH & DEVELOPMENT PROJECTS FOR FORMULATION
AND REVIEW OF STANDARDS**

Committee noted the information given in the agenda.

**Item 7 PROCESS REFORMS AIMED AT STRENGTHENING OF THE STANDARDIZATION
ECOSYSTEM IN THE COUNTRY**

Committee noted the information given in the agenda.

Item 8 DATE AND PLACE FOR THE NEXT MEETING

Date and place of the meeting shall be decided in consultation with the Chair of the committee.

Item 9 ANY OTHER BUSINESS

There being no further business, the meeting ended with vote of thanks to the chair

