सत्यमेव जयते

भारत सरकार Government of India
विद्युत मंत्रालय Ministry of Power
उत्तर पूर्वी क्षेत्रीय विद्युत समिति
North Eastern Regional Power Committee
एन ई आर पी सी कॉम्प्लेक्स, डोंग पारमाओ, लापालाङ, शिल्लोंग-७९३००६, मेघालय
NERPC Complex, Dong Parmaw, Lapalang, Shillong - 793006, Meghalaya

SPEED POST/FAX
Ph : 0364-2534039
Fax: 0364-2534040
email: nerpc@ymail.com
website: www.nerpc.gov.in

No.: No. NERPC/SE (O)/PCC/2024/1341-1382 July 2, 2024

To
As per list attached

Sub: Minutes of 68th Protection Coordination Sub-Committee (PCC) Meeting

Sir/Madam,

Please find enclosed herewith the minutes of the 68th PCC Meeting held at NERPC conference Hall, Shillong on 13th June 2024 for your kind information and necessary action. The minutes is also available on the website of NERPC: www.nerpc.gov.in.

Any comments/observations may kindly be communicated to NERPC Secretariat at the earliest.

भवदीय / Yours faithfully,

(अनिल कवरानी/ Anil Kawrani)
निदेशक / Director

Encl: As above

Distribution List:

1. Managing Director, AEGCL, Bijuli Bhawan, Guwahati – 781 001
2. Managing Director, APGCL, Bijuli Bhawan, Guwahati – 781 001
3. Managing Director, APDCL, Bijuli Bhawan, Guwahati – 781 001
4. Managing Director, MSPCL, Electricity Complex, Keishampat, Imphal – 795 001
5. Managing Director, MSPDCL, Secure Office Bldg. Complex, South Block, Imphal – 795 001
6. Director (Transmission), MePTCL, Lumjingshai, Short Round Road, Shillong – 793 001
7. Director (Generation), MePGCL, Lumjingshai, Short Round Road, Shillong – 793 001
8. Director (Distribution), MePDCL, Lumjingshai, Short Round Road, Shillong – 793 001
9. Director (Tech.), TSECL, Banamalipur, Agartala -799 001.
10. Director (Generation), TPGCL, Banamalipur, Agartala -799 001.
11. GM (Transmission), TPTL, Banamalipur, Agartala -799 001.
12. Chief Engineer (WE Zone), Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791111
13. Chief Engineer (TP&MZ), Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791111
14. Chief Engineer (Commercial) -cum- CEI, DoP, Govt. of Arunachal Pradesh, Itanagar- 791111
15. Engineer-in-Chief, P&E Department, Govt. of Mizoram, Aizawl – 796 001
16. Engineer-in-Chief, Department of Power, Govt. of Nagaland, Kohima – 797 001
17. ED (O&M), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
18. ED (O&M), NHPC, NHPC Office Complex, Sector-33, Faridabad, Haryana-121003
19. Group GM, NTPC, Bongaigoan Thermal Power Project, P.O. Salakati, Kokrajhar- 783369
20. Vice President (Plant), OTPC, Badarghat Complex, Agartala, Tripura - 799014
21. ED, PGCIL/NERTS, Dongtieh-Lower Nongrah, Lapalang, Shillong -793 006
22. AGM (BD), NVVN, Core 5, 3rd floor, Scope Complex, 7 Institutional Area, Lodhi Rd., N. Delhi-3
23. Vice President, PTCIL, 2nd Floor, NBCC Tower, 15, Bhikaji Cama Place, New Delhi – 110066
24. Dy. COO, CTUIL, "Saudamini", 1st Floor, Plot No. 2, Sector-29, Gurugram, Haryana – 122001
25. Chief Engineer, GM Division, Central Electricity Authority, New Delhi – 110066
26. Chief Engineer, NPC Division, Central Electricity Authority, New Delhi – 110066
27. Head & VP, (R&C), ENICL, IndiGrid, Windsor Building, Kalina, Santacruz (East), Mumbai- 98
28. ED, NERLDC, Dongtieh, Lower Nongrah, Lapalang, Shillong -793 006
29. CGM, AEGCL, Bijuli Bhawan, Guwahati – 781001
30. CGM, APGCL, Bijuli Bhawan, Guwahati – 781001
31. CGM, DISCOM, Bijuli Bhawan, Guwahati – 781001
32. Head of SLDC, Dept. of Power, Govt. of Arunachal Pradesh, Itanagar – 791111
33. CGM, (LDC), SLDC Complex, AEGCL, Kahilipara, Guwahati-781 019
34. Head of SLDC, MSPCL, Imphal – 795001
35. Head of SLDC, MePTCL, Lumjingshai, Short Round Road, Shillong – 793 001
36. Head of SLDC, P&E Deptt. Govt. of Mizoram, Aizawl – 796 001
37. Head of SLDC, Dept. of Power, Govt. of Nagaland, Dimapur – 797103
38. Head of SLDC, TSECL, Agartala – 799001
39. Chief Engineer (Elect), Loktak HEP, Vidyut Vihar, Kom Keirap, Manipur- 795124
40. DGM (O&M), OTPC, Badarghat Complex, Agartala, Tripura – 799014
41. AGM Regulatory & Commercial, NER II TL, 10th Floor, Berger Tower, Noida sector 16B-201301
42. Director, NETC, 2C, 3rdFloor, D21Corporate Park, DMRC Building Sector 21, Dwarka, Delhi-77.

(अनिल कवरानी/ Anil Kawrani)
निदेशक / Director

सत्यमेव जयते

Minutes of 68th PCCM

Govt. of India
Ministry of Power
North Eastern Regional Power Committee
Shillong

North Eastern Regional Power Committee

Minutes of

68th Protection Coordination Sub-Committee Meeting

Date: 13/06/2024 (Thursday)

Time: 11:30 hrs.

Venue: NERPC conference Hall, Shillong

The list of Participants is attached as **annexure I**

A. CONFIRMATION OF MINUTES

1. CONFIRMATION OF MINUTES OF THE 67th PROTECTION SUB-COMMITTEE MEETING OF NERPC.

Minutes of the 67th PCC Meeting held on 16th May, 2024 (Thursday) at NERPC Conference Hall, Shillong was circulated vide letter No.: NERPC/SE (O)/PCC/2024/602-643 dated 31st May, 2024.

No comment(s)/observation(s) were received from the constituents.

The Sub-committee confirmed the minutes of 67th PCCM accordingly.

B. ITEMS FOR DISCUSSION

B.1 Protection Audit of NER:

As per the protection code of IEGC 2023 following roles and responsibilities, related to the subject mentioned, of constituents have been defined–

Description		Constituent	Responsibility	Timeline
Audit	Internal Audit	All users (132kV and above)	Shall conduct internal audit of protection system	Annually
			Audit report to be shared with RPC	Within 30 days of Audit
			Action plan for rectification of deficiencies to be shared with RPC	Within 30 days of Audit
	Third party Audit	All users (132kV and above)	Shall conduct audit for each SS	Once in five years
			Shall conduct audit on advice of RPC	Within three months of advice of RPC
			Audit report* to be submitted to RPC and NERLDC/SLDC	Within a month of submission of third-party audit report
			Action plan for rectification of deficiencies	Same as above
		RPC	Compliance to audit reports to be followed up regularly	Not specified
		RPC	After analysis of any event, shall identify substations where audit is required to be carried out	Conditional responsibility
	Annual audit plan	All users	Annual audit plan to be submitted to RPC by ***31st October***	Annual

Background: In 60th PCCM the following points were discussed-

Member Secretary NERPC informed that third party protection audit has to be generally conducted by the utilities on their own. However, the 3rd party audit will be carried out by team constituted by NERPC at selected substations based on the criticality, analysis and requirement. In this regard, NERPC has already circulated an audit calendar and audit formats for reference of the constituents.

The nodal officers of respective State/Power Utilities have to fill the audit formats and submit to the NERPC secretariat within 1 week.

The forum decided that compliance to audit reports will be followed up regularly in PCC meeting of NERPC.

Information regarding substations that have already been audited will be provided by States to NERPC & NERLDC.

Forum agreed that all users (132 kV and above) have to conduct Internal Audit annually and submit audit report to RPC with action plan for rectification of deficiencies within 30 days of Audit.

Regarding audit plan of utilities, the forum requested the utilities to furnish the list of substations and audit (internal as well as third party) schedule for FY 2024-25. NERLDC Stated that a google spreadsheet has been circulated to the constituents to provide the schedule of protection audit as well as date of last audit. The forum requested the constituents to update the spreadsheet.

In 67th PCCM, following points were discussed

1. Forum requested Users to update the proposed date for Internal Audit & Third-party Audit in the spreadsheet shared by NERLDC as soon as possible before next PCSC.
2. AEGCL updated that they will start the third-party protection audit after 1st June'24 and will share the schedule shortly.
3. Mizoram stated that reports of internal audit will be shared to NERPC after obtaining approval of the reports by the head office. He also stated that external audit will be planned shortly.
4. TSECL updated that internal audit committee has been formed and the audit plan will be shared shortly to NERPC. Forum requested TSECL to plan for third party audit also.
5. Manipur updated that internal audit has been completed in April'24. Forum requested to share the report to NERPC and NERLDC and plan for external audit.
6. DoP Arunachal Pradesh updated that internal audit of two substations will be carried out by end of May'24.
7. OTPC informed that 3rd party audit will be conducted by CPRI by June 2024

Regarding audit of substations of Nagaland and adjoining substations of NERTS, MS, NERPC stated that the audit will be conducted in the last week of June'2024.

Deliberation of the sub-committee

1. Forum requested users to update the proposed date for Internal Audit & Third-party Audit in the spreadsheet shared by NERLDC as soon as possible.
2. AEGCL updated that the internal audit was underway and would be completed by June'24. He also updated that third party audit of most of the substations were carried out by NERPC in 2021 and in January'24 and May'24. For rest of the substations the audit to be planned soon.
3. Mizoram stated that reports of internal audit had been shared with NERPC and schedule for external audit had been updated in the google sheet.
4. TSECL updated that internal audit committee had been formed and the internal audit had been stared. Forum requested TSECL to plan for third party audit also.
5. Manipur updated that internal audit report had been shared with NERPC. Forum requested to plan for the external audit at the earliest subject to Law and Order situation in the State.
6. DoP Arunachal Pradesh updated that internal audit of Chimpu SS was underway and audit of Lekhi would be done by this month. He also stated that the audit reports would be shared in due time to NERPC.
7. OTPC updated that internal audit of Palatana station had been started and 3rd Party audit had already been conducted in Nov'23.
8. NTPC informed that 3rd party audit would be conducted by CPRI by June 2024.

Regarding audit of substations of Nagaland and adjoining substations of NERTS, MS, NERPC stated that the audit would be conducted shortly.

B.2 <u>Urgent requirement of Third-Party Protection Audit of substations of MePTCL</u>

In 64th PCCM, MePTCL had informed that third party protection audit is urgently required at 21 substations (list provided).

In 65th PCCM, MePTCL updated that a revised list of prioritized substations which includes 18 substations has been submitted to NERPC. Member Secretary, NERPC Stated that conducting audit by NEPRC team at these 18 substations may not be feasible and advised MePTCL to send a list of 4-5 substations for which protection audit may be conducted by NERPC.

In 67th PCCM, MePTCL informed that six substations, viz; Killing, Mawphlang, Mawlai, NEHU, Khliehriat and Lumshnong have been shortlisted for carrying out

urgent protection audit. NERPC informed that audit at these substations will be carried out shortly. Also, NERTS requested to carry out 3rd party protection audit at Khlieriat (PG) along with Khlieriat (Meghalaya) substation.

Deliberation of the sub-committee

MS NERPC stated that audit would tentatively be conducted by end of July'24.

B.3 Detailed system study to review the protection settings of NER grid as per IEGC 2023

As per regulation 14(1) of IEGC 2023, "RPCs shall undertake review of the protection settings, assess the requirement of revisions in protection settings and revise protection settings in consultation with the stakeholders of the respective region, from time to time and at least once in a year. The necessary studies in this regard shall be carried out by the respective RPCs. The data including base case (peak and off-peak cases) files for carrying out studies shall be provided by RLDC and CTU to the RPCs"

In this regard, each State has to carry out the detailed system of their grid, once a year, in order to holistically overview the protection settings in the State and present the study report to NERPC and NERLDC. States may use the PDMS and PSCT software platforms to carry out the studies.

In 66th PCCM, NERPC stated that the States may carry out the necessary studies by using the PSCT and PDMS software of M/s PRDC.

Assam stated that for training of the software is required to impart necessary skills to the personnel of the State.

PRDC representative assured that necessary training session will be conducted for all the States. He, further highlighted that before carrying out the studies Protection settings database of the software has to be updated.

MS, NERPC directed M/s PRDC to update the database in coordination with NERPC, NERLDC and concerned utilities.

NERLDC highlighted the need to update the database in PDMS software from time to time and also requested PRDC team to model the entire power system of NER in PSCT tool for setting calculation considering recent network changes.

States further requested that a user manual of the PSCT and PDMS software may be provided for easy reference during carrying out the studies. M/S PRDC assured to provide the same at the earliest.

In 67th PCCM, M/s PRDC intimated that the training has been scheduled on 20th and 21st June'24. Forum requested PRDC to take nominations from the States and to share the schedule to them and also take feedback from the trainees after the session.

PRDC agreed to Assam's request to carry out the case studies on some substations of AEGCL during the training. MS, NERPC asked M/s PRDC to update and verify the database in PDMS in coordination with NERLDC.

Deliberation of the sub-committee

M/s PRDC updated that the training (online) had been scheduled on 20th and 21st June'24. Forum requested the States to send the nominations for the training at the earliest.

Mizoram provided the nominations as under-

1. Sh. C.Daniela, EE
2. Sh. Lalawmpuia Chawngthu, AE

Other States stated that nomination would be sent through email to NERPC.

Sub-committee noted as above.

B.4 Analysis and Discussion on Grid Disturbances which occurred in NER grid in May'24 in compliance with IEGC 2023:

TABLE 8 : REPORT SUBMISSION TIMELINE

Sr. No.	Grid Event^ (Classification)	Flash report submission deadline (users/ SLDC)	Disturbance record and station event log submission deadline (users/ SLDC)	Detailed report and data submission deadline (users/ SLDC)	Draft report submission deadline (RLDC/ NLDC)	Discussion in protection committee meeting and final report submission deadline (RPC)
1	GI-1/GI-2	8 hours	24 hours	+7 days	+7 days	+60 days
2	Near miss **event**	8 hours	24 hours	+7 days	+7 days	+60 days
3	GD-1	8 hours	24 hours	+7 days	+7 days	+60 days
4	GD-2/GD-3	8 hours	24 hours	+7 days	+21 days	+60 days
5	GD-4/GD-5	8 hours	24 hours	+7 days	+30 days	+60 days

^*The classification of Grid Disturbance (GD)/Grid Incident (GI) shall be as per the* CEA Grid Standards.

The forum may deliberate upon the GD/GI/Near miss events that occurred in May 2024 based on the draft report prepared by NERLDC.

Deliberation of the sub-committee

NERPC stated that the Grid events had been discussed in a special meeting held on 11.06.2024 and the analysis report and recommended actions had been provided in **annexure B.4**. The forum endorsed the report and exhorted the concerned utilities to comply with the recommendations at the earliest.

Agenda from NERLDC

B.5 Status of submission of FIR, DR & EL outputs for the Grid Events for the month of May'2024

In line with regulation 12 (1) of CEA Grid Standards Regulations and IEGC-23 provision under clause 37.2 (c), FIR and DR & EL Outputs for each grid events are required to be submitted by concerned utilities to NERLDC for detailed investigation and analysis.

Status of uploading of FIR, DR & EL outputs in Tripping Monitoring Portal for events from 01-05-2024 to 31-05-2024 as on **07-06-2024** is given below:

Name of Utility	No of trippings	Total FIR, DR & EL to be submitted			Total FIR, DR & EL submitted			% Submission of		
		FIR	DR	EL	FIR	DR	EL	FIR	DR	EL
DoP, Arunachal Pradesh	11	15	15	15	10	9	13	67	67	87
AEGCL	49	95	81	80	95	66	59	100	100	100
APGCL	0	-	-	-	-	-	-	No event		
MSPCL	25	34	31	32	31	16	19	91	74	72
MePTCL	100	140	132	130	136	122	122	97	94	94
MePGCL	28	44	40	41	3	34	23	7	100	56
P&ED, Mizoram	4	7	7	7	7	3	4	100	100	100
DoP, Nagaland	10	17	16	16	13	11	11	76	81	81
TSECL	25	44	44	44	9	36	36	20	84	82
TPGCL	3	3	3	3	0	0	0	0	0	0
POWERGRID	53	97	95	93	94	87	81	97	95	96
NEEPCO	32	41	31	33	38	24	25	93	77	76
NHPC	6	6	6	6	6	6	6	100	100	100
NTPC	0	-	-	-	-	-	-	No event		
OTPC	1	1	1	1	1	1	1	100	100	100
IndiGrid	0	-	-	-	-	-	-	No event		
MUML	1	1	1	1	1	1	1	100	100	100
KMTL	1	1	1	1	1	1	1	100	100	100

Concerned Utilities are requested to upload Disturbance Recorder (DR), Event Logger (EL) outputs for grid events along with a First Information Report (FIR) in Tripping Monitoring Portal (https://tripping.nerldc.in/Default.aspx) for analysis purpose. In light of the cybersecurity measures implemented by Grid India to safeguard sensitive information, NERLDC has created the email address nerldcso3@gmail.com . This new account has been specifically set up to facilitate the secure exchange of DR and EL files that have previously faced blockage when sent to nerldcprotection@grid-india.in.

Deliberation of the sub-committee

The forum appreciated DoP Arunachal Pradesh, DoP Nagaland, POWERGRID, AEGCL, MePGCL, P&ED Mizoram, NHPC, OTPC, MUML and KMTL for 100 percent submission of DR.

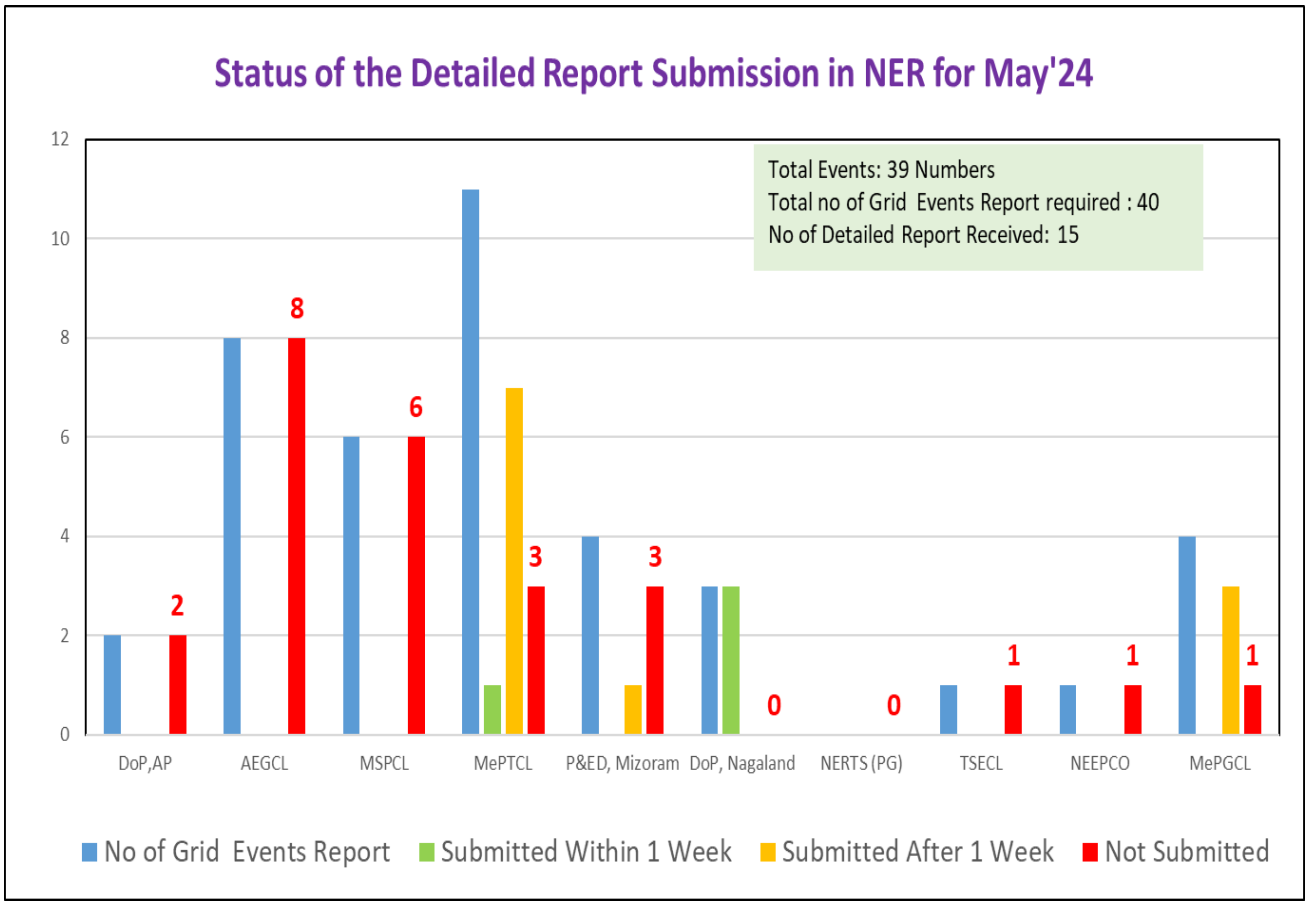
MSPCL informed that DR downloading facility is not available in some substations. Laptop procurement will be done shortly. TPGCL informed that there is no computer in generating station due to which they are not able to submit the DR/EL.

MS, NERPC urged all the utilities to submit the FIR, DR and EL data timely in compliance with IEGC 2023.

B.6 Submission of Flash Report and Detailed Report by User/SLDC as per IEGC-2023:

As per IEGC-2023, all User/SLDCs are requested to prepare and share **Flash Report** and **Detailed Report** with **NERLDC** and **NERPC** following any Grid Events as per the timeline mentioned in the cl 37.2(f).

Status of submission of the same for the month of **May, 2024** is shown below:



All the utilities are requested to promptly share all the necessary information such as FIR, DR, EL and Reports (Flash Report & Detailed Report) as per the specified timeline mention in the Grid Code.

Deliberation of the sub-committee

The forum noted the instances of non-submission or untimely submission of flash report and detailed report by the utilities.

Forum requested all utilities to prepare and share the report (Flash /Detail) within the specified timeline as per Grid code.

B.7 Non-operation of auto recloser in Important Grid Elements for transient faults in May 2024 (till 20th May):

As updated by the utilities in the meeting -

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
1	132 kV Hailakandi - Silchar 2 Line	01-05-2024 01:53	DP,ZI,Y-E,FD:3.4 Kms	DP,ZI,Y-E,FD:28 Kms, AR Operated Sucessfully	Hailakandi	unhealthy CB. Issue resolved
2	220 kV AGBPP - Mariani (PG) Line	01-05-2024 03:12	Z1, B-N, 24.97 Kms	DP, ZI, B-E, FD: 131.4 KM, Operated Sucessfully	AGBPP	Checking by OEM to be done.
3	132 kV Jiribam - Loktak 2 Line	02-05-2024 03:39	DP, ZI, R-E, FD: 25.74 km	Earth fault, overcurrent, Z-1, 49.31 km (DR not opening)	Jiribam	Tripping in reclaim time
4	132 kV Aizawl - Tipaimukh Line	02-05-2024 10:32	DP,ZI,R-B-E,FD:73.3 KM	DP,ZI,R-B-E,FD:41.7 kms, AR Operated (As per FIR)	Aizawl	AR was in non-auto mode due to OPGW stringing work

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
5	132 kV Haflong - Jiribam Line	05-05-2024 12:05	DP, R-E, Z1,13.64 KM, AR Unuccessful	M1: RN,Z1,63.5 KM,1.13KA, AFAS DOUBLE ENDED:73.35 KM KM	Jiribam: Not Operated (as per DR)	Tripping in reclaim time
6	132 kV Badarpur - Karimganj Line	05-05-2024 13:48	DP, ZII, Y-E, FD:27.25 KM, Carrier Aided tripping & AR Operated Successfully	DP, ZI, Y-E, FD: 0.2km	Karimganj	Testing to be done. Shutdown required for checking AR block issue
7	132 kV Aizawl - Tipaimukh Line	05-05-2024 15:00	DP, ZI, R-E, FD:71.19 KM	DP, ZI, R-E, FD:11.6 km, AR Operated as per FIR	Aizawl	AR in non-auto mode due to OPGW stringing
8	132 kV Aizawl - Tipaimukh Line	05-05-2024 21:54	DP,ZI,B-E,FD:72.73KM	Details awaited	Aizawl	AR was blocked due to multiple

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
						carrier fail alarm, DC supply issue at Tipaimukh end. Manipur to check the DC supply.
9	132 kV Jiribam - Tipaimukh Line	05-05-2024 23:39	DP,ZII,B-E,FD: 72.92KM, **106 msecs**	No Tripping (as per FIR)	Jiribam	Zone II tripping
10	132 kV Badarpur - Silchar 1 Line	06-05-2024 08:53	DP,ZI,R-E,FD: 4.4 km, AR Operated Sucessfully	DP, ZII, R-E,FD: 13.49 km, Carrier aided tripping	Silchar	Breaker contactor issue. Resolved
11	132 kV Nirjuli-North Lakhimpur 1 Line	07-05-2024 12:34	DP,ZI,YB, FD: 7.5km, Iy 2.56kA, Ib 2.51kA	DP,ZI,YB, FD:26.7km, Iy 1.0kA, Ib 1.03kA	Both ends	Nirjuli end – BCU logic issue in synch check. Resolved. N.Lakhimpur end – MUML not present in the meeting

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
12	400 kV Azara - Bongaigaon Line	18-05-2024 06:49	DP, ZII, B-E, FD: 151.3km, Carrier Aided Tripping	BG, 9.9kA, 2.294, Z1	Not Operated at Azara (Spring not charged alarm high)	AEGCL informed that single phase fault in Main 1 relay of Azara. However, due to configuration issue Y-B fault in Main 2 relay due to which AR was blocked. The issue will be rectified shortly
13	132 kV AGTCCPP - PK Bari (TSECL) 2 Line	19-05-2024 14:58	DP,ZII, Y-E, Carrier Aided Tripping	DP,ZI,Y-E	both ends	TSEL to check the issue

Sub-committee noted as above

B.8 <u>Submission of Protection Performance Indices by Transmission Utilities:</u>

As per Regulation No. 15(6), Protection Code - Users shall submit the following protection performance indices of previous month to their respective RPC and RLDC on monthly basis for 220 kV and above (132 kV and above in NER) system by 10th of every month for previous month indices, which shall be reviewed by the RPC:

- The Dependability Index defined as $D = Nc/\ Nc+Nf$
- The Security Index defined as $S = Nc\ /Nc+Nu$
- The Reliability Index defined as $R = Nc\ Nc+Ni$

Where,

Nc: number of correct operations at internal power system faults

Nf: Number of failures to operate at internal power system faults.

Nu: Number of unwanted operations.

Ni: Number of incorrect operations and is the sum of Nf and Nu

NETC, MePGCL & DoP Nagaland submitted the Protection Performance Indices for the month of **May, 2024** as follows:

SN	**Name of Transmission Licencee**	**D= (Nc/ Nc+Nf)**	**S= (Nc/ Nc+Nu)**	**R= (Nc/ Nc+Ni)**	**Remarks**
1	NETC	-	-	-	No bays owned by NETC
2	MePGCL	0.902	1	0.902	D,R<1 due to tripping of 132 kV Leshka-Khliehriat D/C lines on 02.05.2024 & 23.05.2024; 132 kV Umiam St III - Umtru 1 Line on 21.05.2024
3	DoP Nagaland	0.941	0.842	0.941	D,S&R<1 due to tripping of 132 kV Dimapur(PG)-Kohima line & 132 kV Zadima-Kohima line on 21.05.2024; 132 kV Sanis-Wokha line tripped on 21.05.2024, 24.05.2024 & 26.05.2024

It has been observed that Protection Performance Indices are not being submitted by all the users. Therefore, all users are requested to furnish performance indices (Dependability-D, Security-S, Reliability-R) with regards to the tripping of elements to NERPC & NERLDC positively **by 10th of every month for previous month indices**.

Sub-committee noted as above

Deliberation of the sub-committee

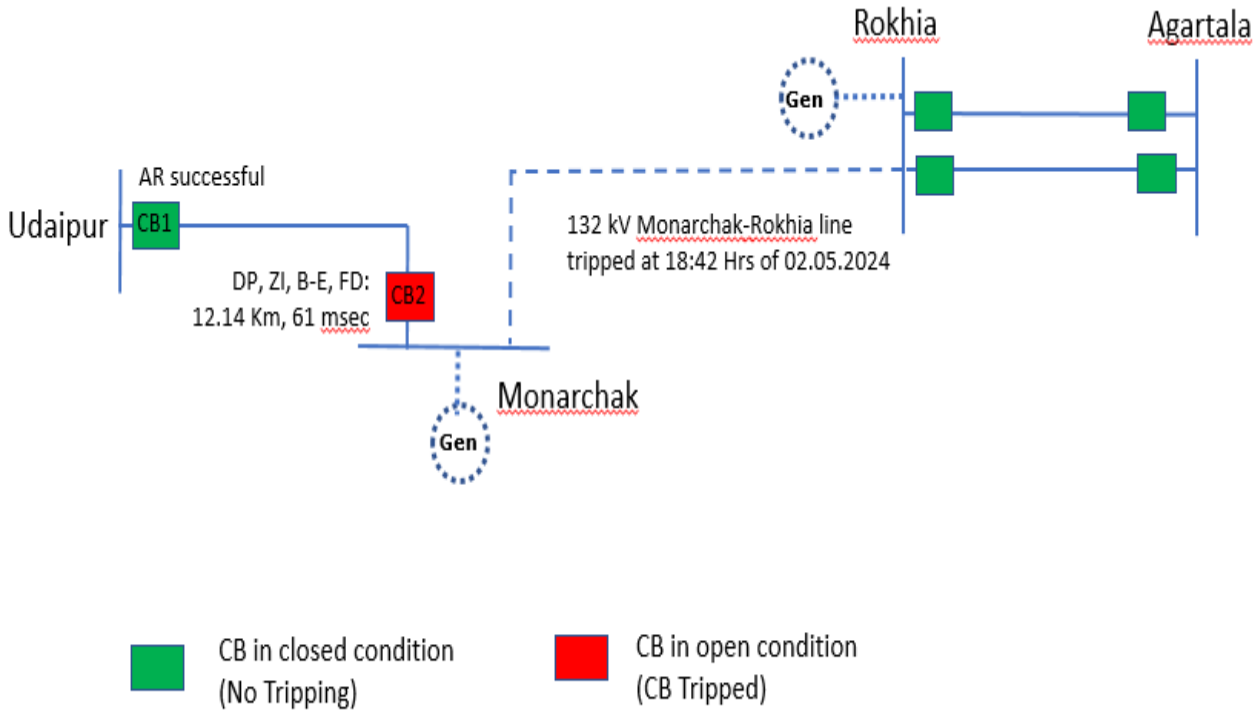
NETC, NTL, MePTCL, MePGCL, DoP Nagaland, AEGCL and NERTS submitted the protection performance indicies for the month of May'24.

Forum requested all utilities to submit the performance indices report within 10th of every month to avoid Grid code violation.

B.9 Grid Disturbance in Monarchak and Rabindranagar S/S of Tripura on 02-May-24:

Monarchak Generating station of NEEPCO and Rabindranagar area of Tripura Power System is connected to the rest of NER Grid through 132 kV Monarchak-Rokhia line and 132 kV Monarchak-Udaipur line. Prior to the event, 132 kV Monarchak-Rokhia line tripped at 18:42 Hrs of 02.05.2024.

At 18:48 Hrs of 02.05.2024, 132 kV Monarchak-Udaipur line tripped which resulted in blackout Monarchak and Rabindranagar S/S of Tripura. **Generation loss of 69 MW and load loss of 5 MW occurred.**



As per DR analysis of 132 kV Monarchak-Udaipur line, B-E fault (Ib-2.4 kA, In-2.6 kA) initiated at 18:32:20.233 Hrs and cleared within 61 msec on operation ZI from Monarchak end. Auto recloser was successful from Udaipur end.

Following observations:

i) Huge DR time drift of 10 min at Monarchak and 8 min at Udaipur. Needs to be rectified by NEEPCO and TPTL.

ii) DR time duration is insufficient at Udaipur. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds.

iii) Flash Report and Detailed report not submitted by NEEPCO & TSECL which is violation of IEGC Section 37.2 (b) & (e).

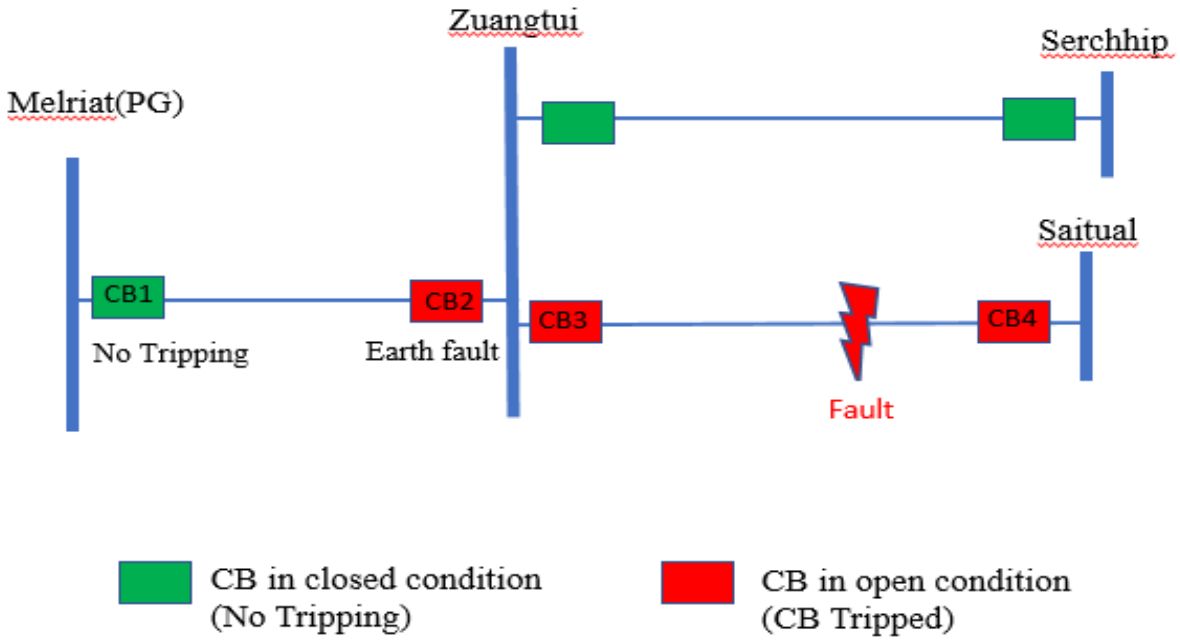
Deliberation of the sub-committee

1. TSECL updated that the tripping of Monarchak-Udaipur line occurred due to transient fault and AR at Monarchak end had been kept off at as there was no PLCC on the line.
2. Forum requested NEEPCO and Tripura to address the issue of DR time drift at the earliest.

Sub-committee noted the above

B.10 Grid Disturbance in Zuangtui S/S and radially connected areas of Mizoram on 05-May-24:

Zuangtui substation and radially connected Saitual, Vankal, Khawzawl and Serchhip substations are connected to the rest of the grid via 132 kV Melriat(PG)-Zuangtui line. 132 kV Serchhip-Lunglei line is kept open due to system requirement. At **04:13 Hrs of 05.05.2024**, 132 kV Melriat-Zuangtui line tripped which led to grid disturbance in Zuangtui S/S and radially connected areas of Mizoram.



As per FIR submitted by P&ED Mizoram, fault was in 132 kV Zuangtui-Saitual line.

Tripping of 132 kV Melriat-Zuangtui line from Zuangtui end for reverse fault in 132 kV Zuangtui-Saitual line is unwanted resulting in blackout of Zuangtui and radially connected substations of Mizoram.

P&ED Mizoram is requested to –

i) Ensure the directionality and setting of Backup relay at Zuangtui for 132 kV Melriat(PG)-Zuangtui Line.

ii) Submit Flash Report and Detailed report as per Section 37.2 (b) & (e) of IEGC.

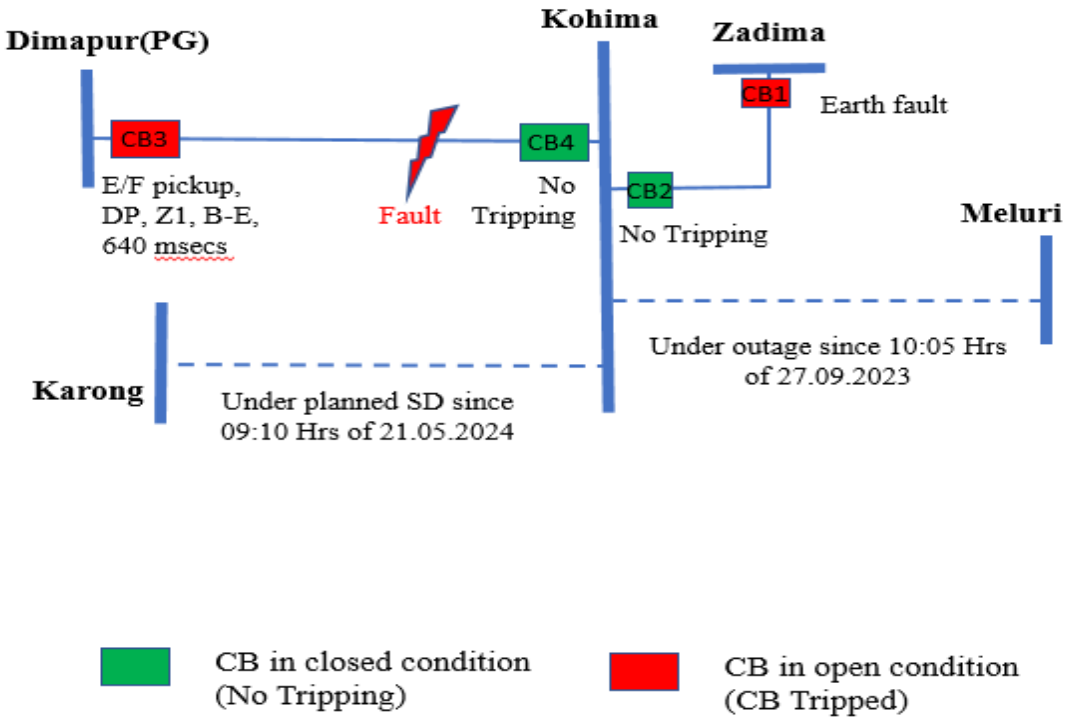
iii) Submit DR & EL file as per Section 37.2 (c) of IEGC.

Deliberation of the sub-committee

Mizoram stated that fault in the Zuagntui-Saitual was due to stormy weather condition at the time. Further, he stated that the directionality and setting of backup relay at Zuangtui for 132 kV Melriat(PG)-Zuangtui Line would be checked shortly.

B.11 Grid disturbance in Kohima area of Nagaland on 21-May-24:

At **16:42 Hrs of 21.05.2024**, 132 kV Dimapur(PG) - Kohima line and 132 kV Kohima-Zadima Line tripped resulting in blackout of Kohima S/S. Load loss of 15 MW occurred.



As per DR analysis of 132 kV Dimapur-Kohima line, high resistive B-E fault occurred at 16:42:46.534 Hrs and cleared within 640 msec from Dimapur end. E/F relay pickup at Dimapur end and after around 600 msec, distance protection detected the fault and ZI operated in 40 msec. There was no tripping from Kohima end.

CB at Zadima tripped on Earth fault.

DoP Nagaland is requested to-

1. Share the root cause and remedial measures taken.
2. Review the Backup E/F setting at Zadima for 132 kV Kohima-Zadima Line.
3. Submit DR & EL file as per Section 37.2 (c) of IEGC.

Deliberation of the sub-committee

1. DoP Nagland updated that the fault occurred in 132 kV Dimapur-Kohima line due to vegetation issue.
2. Fourm requested DoP Nagaland to review the Backup E/F setting at Zadima for 132 kV Kohima-Zadima line and coordinate with ZIII as per NERPC protection philosophy.

B.12 <u>Frequent Grid disturbances in Myndtu Leshka HEP of Meghalaya Power System:</u>

132 kV Myntdu Leshka - Khlieriat D/C lines play a crucial role in power evacuation from Leshka Generation. In the recent past, it has been observed that 132 kV Myntdu Leshka-Khleihriat 1 & 2 lines has tripped **four** times during May 2024.

The details of tripping are as follows:

Sl No.	Name of element	Date and Time of tripping	DR Analysis(End A)	DR Analysis(End B)
1	132 kV Myntdu Leshka - Khleihriat 1 Line	02-May-2024 00:45 Hrs	No tripping	Phase to E fault with Z-2, B-N, Ib: 2.3 kA, FD: 29.2 Kms and tripped within 209 msec.
	132 kV Myntdu Leshka - Khleihriat 2 Line			Phase to E fault with Z-2, B-N, Ib: 2.2 kA, FD: 36.2 Kms and tripped within 210 msec.
2	132 kV Myntdu Leshka - Khleihriat 1 Line	02-May-2024 04:10:00 Hrs	DP, ZI, R-N and tripped within 60 msec	Phase to E fault with Z-2, R-N, Ia: 2.3 kA, FD: 34.32 Kms and tripped within 198 msec.
	132 kV Myntdu Leshka - Khleihriat 2 Line	02-May-2024 04:11:00 Hrs	No tripping	Phase to E fault with Z-1, R-B-N, Ia: 2.2 kA,Ic:2.5 kA, In:1.6 kA, FD: 21.62 Kms and tripped within 65 msec.
3	132 kV Myntdu Leshka - Khleihriat 1 Line	05-May-2024 16:05:00 Hrs	DP, ZI, R-B-N and tripped within 56 msec	Phase to E fault with Z-1, R-B-N, Ia: 2.9 kA,Ic:1.8 kA, In:1.4 kA and tripped within 73 msec.
	132 kV Myntdu Leshka - Khleihriat 2 Line		DP, ZI, R-B-N and tripped within 56 msec	Phase to E fault with Z-1, R-B-N, Ia: 2.9 kA,Ic:4.2 kA, In:2.0 kA and tripped within 65 msec.
4	132 kV Myntdu Leshka - Khleihriat 1 Line	23-May-2024 14:05:00 Hrs	No tripping	Phase to E fault with Z-1, R-B-N, Ia: 2.8 kA,Ic:2.4 kA, In:1.8 kA and tripped within 66 msec.
	132 kV Myntdu Leshka - Khleihriat 2 Line			Phase to E fault with Z-1, R-B-N and tripped within 66 msec.

Following observations needs to be addressed:

1. There was no Auto reclose attempt observed. The auto-reclose (A/R) scheme should be inspected and activated to ensure the safe evacuation of Leshka generation by reclosing the line in case of single phase fault.
2. ZII time delay need to be reviewed as per NERPC protection philosophy.
3. DR channels needs to be standardized both ends:

- DR time duration appears to be insufficient at Leshka. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds.
- DR time not synchronised, exhibiting time drift issue at Leshka & Khliehriat.
- CB status is currently not allocated in the DR digital channel. It's essential for MePTCL and MePGCL to include CB ON/OFF status in DR channels at both ends for fruitful analysis of events.

4. MePGCL is requested to ensure that patrolling related activities are undertaken as per CEA (Grid Standard) Regulation, 2010 on regular basis and measures may be identified and implemented at the earliest so as minimize tripping of these lines.

Deliberation of the sub-committee

MePGCL updated that the tripping on 2nd May occurred due to non-clearance of fault in the link at Leshka station. Further, MePGCL stated that other tripping occurred due to lightening faults in the line.

Recommended actions-

1.Providing line differential protection on the link feeder

2.Installaiton of TLSA on the line

3.Single Phase AR on the line

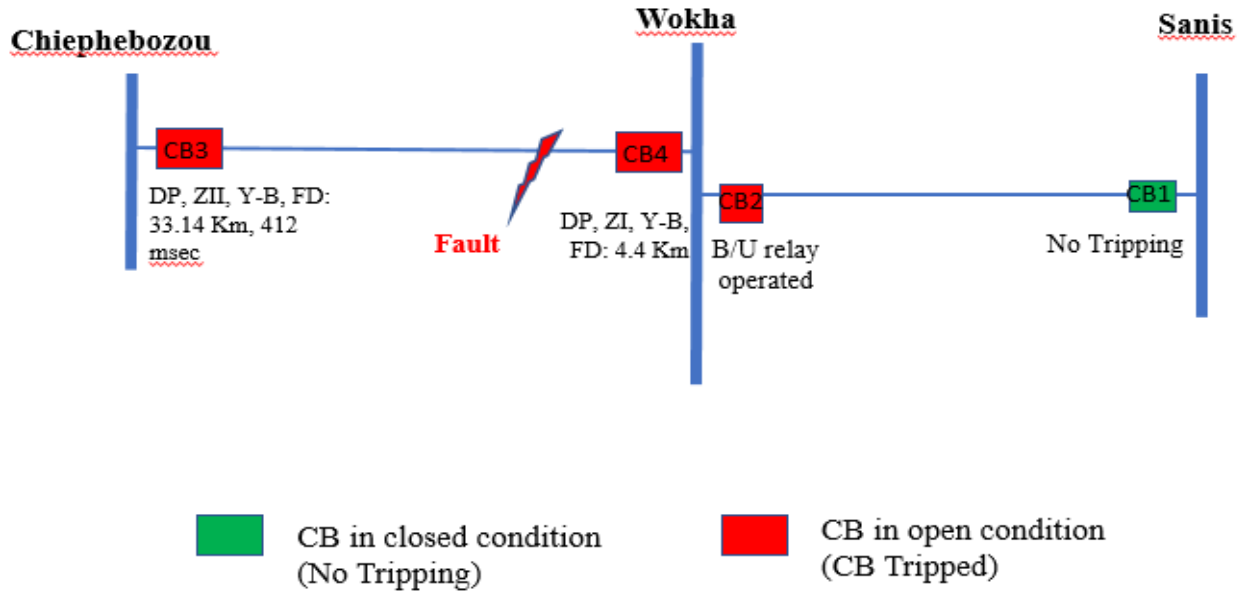
4. DR standardization issue at Leshka & Khleihriat to be rectified. MePGCL agreed to resolve the issues by July'24.

MePGCL informed that a meeting will be held with State protection Committee regarding implementation of Auto recloser in 132 kV Leshka-Khliehriat D/C lines.

B.13 Grid Disturbance in Wokha area of Nagaland on 24-May-24:

Wokha area of Nagaland Power System was connected with rest of NER Grid through 132 kV Sanis-Wokha line and 132 kV Wokha-Chiephebozou line.

At **14:54 Hrs of 24.05.2024**, 132 kV Sanis-Wokha line and 132 kV Wokha-Chiephebozou line tripped resulting in blackout of Wokha area of Nagaland.



As per DR analysis, Y-B fault occurred at 14:52:50.632 Hrs in 132 kV Wokha-Chiehphebozou line cleared on ZI within 70 msec from Wokha and within 412 msec from Chiephebozou end on ZII.

132 kV Wokha-Sanis line tripped from Wokha end on operation of backup protection. There was no tripping from Sanis end.

Following observations:

i) Tripping of 132 kV Wokha-Sanis line from Wokha end on operation of backup protection for fault in 132 kV Wokha-Chiephebozou line (reverse fault) is unwanted.

ii) DR time at Wokha end for 132 kV Wokha-Chiephebozou line and 132 kV Wokha-Sanis line is different from the event time.

iii) DR of backup relay at Wokha end for 132 kV Wokha-Sanis line not submitted by DoP Nagaland.

Same type of event occurred at 20:26 Hrs of 26.05.2024.

DoP Nagaland may update the root cause and remedial measures taken.

Deliberation of the sub-committee

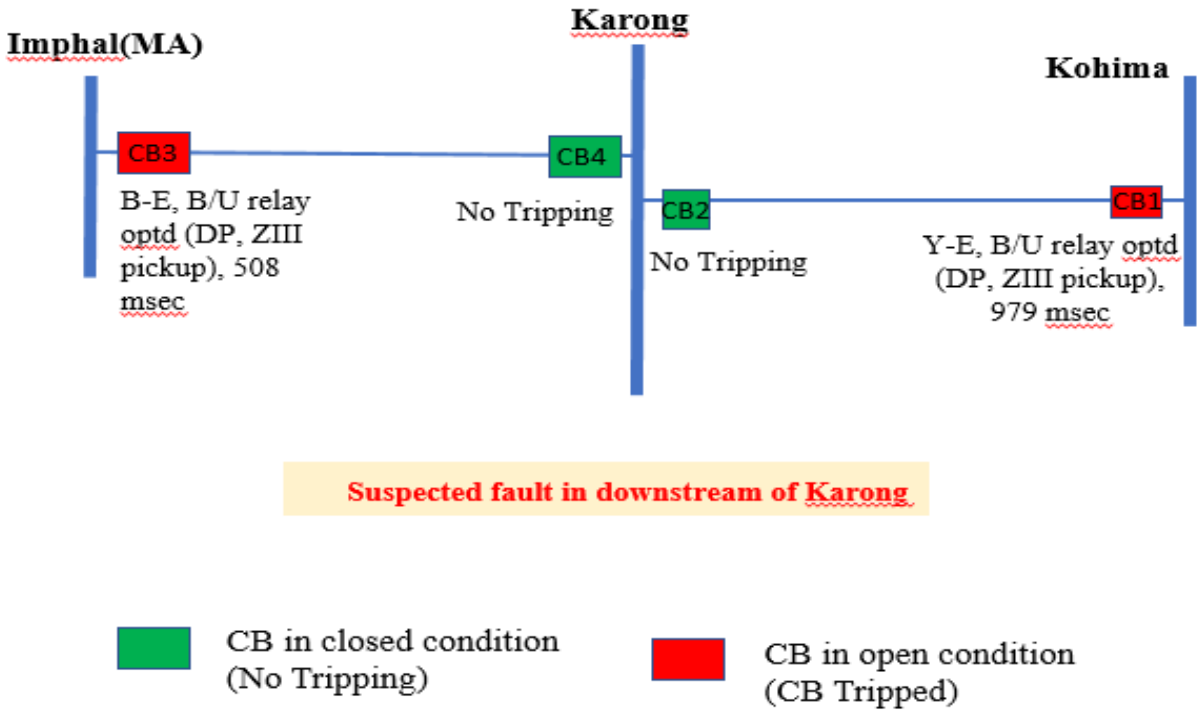
DoP Nagaland informed that B/U relay at Wokha for 132 kV Sanis-Wokha line was disabled on 28.05.2024. However, even after disabling of the B/U relay, the relay is issuing trip command.

Forum asked DoP Nagaland to test the backup AVANA relay and switch the relay OFF till the issue gets resolved.

B.14 Grid Disturbance in Karong area of Manipur on 28-May-24:

Karong area of Manipur Power System is connected with rest of NER Grid through 132 kV Imphal (MSPCL)-Karong and 132 kV Karong-Kohima lines.

At **08:44 Hrs of 28.05.2024**, 132 kV Imphal (MSPCL)-Karong and 132 kV Karong-Kohima Lines tripped resulting in blackout of Karong area of Manipur.



ZIII pickup at Imphal (MA) and Kohima end for 132 kV Imphal(MA)-Karong and 132 kV Karong-Kohima lines clearly indicates that fault was in the downstream of Karong.

Following observations:

i) Protection system of downstream feeder at Karong failed to operate as a result of which fault was cleared by tripping of healthy 132 kV Imphal(MA)-Karong and 132 kV Karong-Kohima lines.

ii) B/U E/F time delay at Imphal(MA) for 132 kV Imphal(PG)-Karong line needs to be coordinated with ZIII setting as per NERPC protection philosophy.

iii) Huge Time drift of about 27 min was observed from Imphal(MA) end DR for 132 kV Imphal(MA)-Karong line and 2 min was observed from Kohima end DR for 132 kV Karong-Kohima line. The same needs to be corrected at earliest in line with Cl. 17.2.3 of IEGC regulation-2023 for proper analysis purpose.

iv) DR of backup relay at Imphal(MA) end for 132 kV Imphal(MA)-Karong line & Kohima end for 132 kV Karong-Kohima line not submitted by MSPCL & DoP Nagaland.

Deliberation of the sub-committee

MSPCL informed that fault was in 33 kV downstream feeder. Protection system of 33 kV feeder did not operate due to panel fire issue, which was later replaced. Forum urged MSPCL to coordinate Backup E/F setting at Imphal(MA) with ZIII setting as per NERPC protection philosophy.

Regarding the time drift, MSPCL assured to take action shortly.

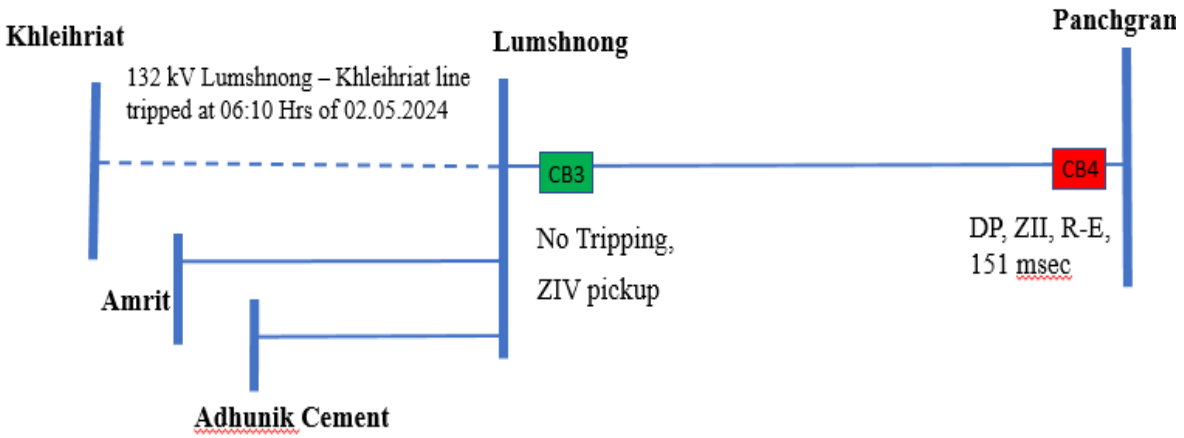
B.15 Grid Disturbance in Lumshnong area of Meghalaya on 30-05-2024:

Lumshnong area of Meghalaya Power System is connected to the rest of NER Grid through 132 kV Lumshnong-Panchgram and 132 kV Lumshnong-Khliehriat lines.

Event 1:

Prior to the event, 132 kV Lumshnong-Khleihriat line tripped at 06:10 Hrs of 02.05.2024.

At 07:01 Hrs of 02.05.2024, 132 kV Lumshnong-Panchgram line tripped resulting in blackout of Lumshnong area of Meghalaya.



Suspected fault in 132 kV M/S Amrit or 132 kV M/S Adhunik Cement

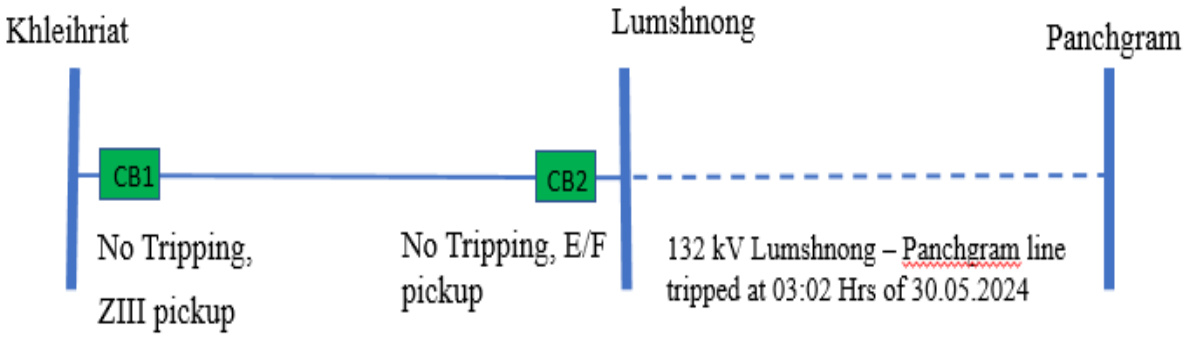
As per DR analysis, R-E fault (Ir-1.8 kA, In-1.4 kA) initiated at 07:00:11.821 Hrs in 132 kV Lumshnong-Panchgram line cleared within 151 msec on operation of DP, ZII from Panchgram end only. ZIV start at Lumshnong end which inferred that fault is in reverse direction.

Fault is suspected in 132 kV Amrit or 132 kV Adhunik Cement line.

Event 2:

Prior to the event, 132 kV Lumshnong-Panchgram line tripped at 03:02 Hrs of 30.05.2024 from Panchgram end.

At 06:39 Hrs of 30.05.2024, 132 kV Lumshnong-Khliehriat line tripped resulting in blackout of Lumshnong area of Meghalaya.



As per DR analysis of Khliehriat end, solid R-Y-B fault (Ir-2.2 kA, Iy-2.4 kA, Ib-2,4 kA) initiated at 06:38:48.098 Hrs and fault current disappeared within 64 msec. Again, at 06:38:48.322 Hrs, Y-E fault (Iy-1.5 kA, In-1.3 kA) reappeared and fault current disappeared within 471 msec. **DP, ZIII** pickup at Khliehriat end. There was no tripping from Khleihriat end.

As per SOE, CB tripped at Lumshnong end. However, as per EL of Lumshnong end, **IN>1** started and **all pole dead ON** after 488 msec.

It is unclear as to which protection system operated and cleared the fault. MePTCL may update.

MePTCL is requested to –

i) Share the root cause and remedial measures taken.

ii) Protection setting coordination for 132 kV Amrit & 132 kV Adhunik Cement needs to be done by MePTCL.

Deliberation of the sub-committee

Event 1

1. MePTCL informed that fault was in 132 kV Amrit line.
2. Forum suggested AEGCL to increase ZII time delay at Panchgram to 250 msec for 132 kV Panchgram-Lumshnong line in coordination with PGCIL for 132 kV Badarpur-Panchgram Line.
3. Forum suggested MePTCL to enable High Set for B/U protection of 132 kV Amrit & 132 kV Adhunik Cement.

Event 2

1. MePTCL informed at 06:39 Hrs, R-Y-B in 132 kV Lumshnong-Panchgram line cleared from Lumshnong in ZI. Again, Y-E fault reappeared and LBB operated at Lumshnong. (fault cleared 471 msec)
2. MePTCL informed arching must have occurred in the Y-phase interrupter pole. CB Y-pole will be replaced shortly within June'24.
3. Forum asked MePTCL to keep LBB time delay setting to 200 msec as per NERPC protection philosophy.

B.16 Bus Bar operation at Mawngap SS of Meghalaya on 29-05-2024:

Mawngap and New Shillong areas of Meghalaya Power System are connected with the rest of NER grid via 220kV Mawngap-Killing D/C lines and 220/132 kV ICT-I & II at Mawngap.

At **15:17 Hrs of 29.05.2024**, 220 kV Mawngap-Killing D/C lines tripped. At the same time, Bus Bar protection mal-operated at Mawngap due to which 220 kV Mawngap-New Shillong D/C lines and 220/132 kV ICT-I&II at Mawngap tripped resulting in blackout of 220 kV Mawngap S/S.

Sl. No.		**Trip time (hh:mm:ss)**	**Restoration time**	**उप केंद्र 1 रिले संकेत**	**उप केंद्र 2 रिले संकेत**
1	220 kV Mawngap-Killing I Line	15:17	17:19	DP, ZI, R-Y-B-E	DP, ZII, R-Y-B-E, FD: 96.87 Km, Carrier Aided Trip and DT Received
2	220 kV Mawngap-Killing II Line	15:17	17:20	DP, ZI, R-Y-B-E, FD: 4.4 Km	DP, ZII, R-Y-B-E, FD: 97.65 Km, Carrier Aided Trip and DT Received
3	220 kV Mawngap-New Shillong I Line	15:17	17:29	ZIV pickup, Bus bar operated	ZII pickup, DT recieved
4	220 kV Mawngap-New Shillong II Line	15:17	17:30	DR file not opening	ZII pickup, DT recieved
5	220/132 kV ICT-I at Mawngap	15:17	17:21	As per FIR, Bus bar protection operated (DR file not opening)	
6	220/132 kV ICT-II at Mawngap	15:17	17:22		

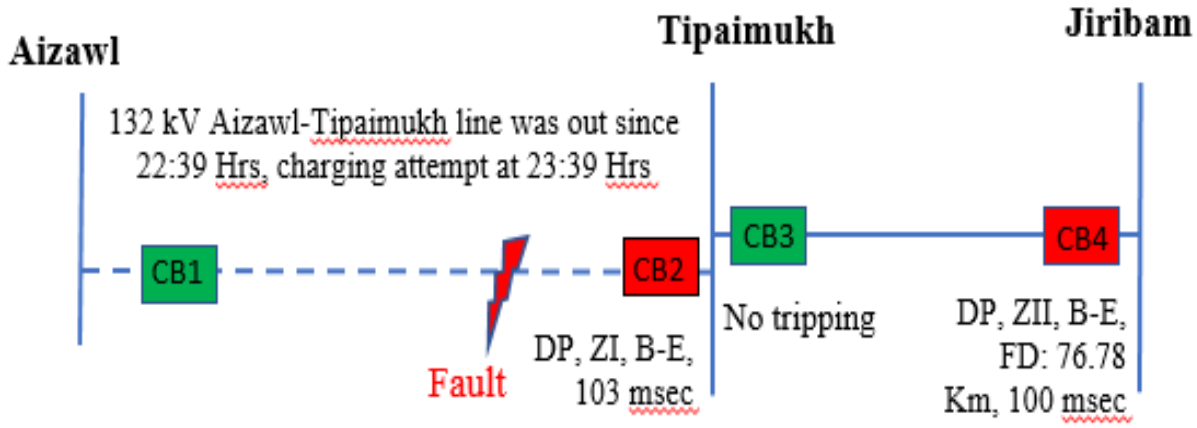
MePTCL is requested to intimate the reason of mal operation of Bus bar protection at Mawngap and remedial measures taken.

Deliberation of the sub-committee

MePTCL stated that mal-operation of Bus Bar issue had to be resolved by NERPSIP. MS, NERPC stated that a communication will be done with to NERPSIP regarding the matter.

B.17 Grid Disturbance in Tipaimukh area of Manipur on 17-April-24:

Tipaimukh area of Manipur power system is connected to the rest of the grid via 132 kV Jiribam(PG)-Tipaimukh and 132 kV Aizawl-Tipaimukh lines. Prior to the event, 132 kV Aizawl-Tipaimukh line tripped twice at 21:54 Hrs & 22:39 Hrs of 05.05.2024. At 23:39 Hrs of 05-05-2024, while taking charging attempt of 132 kV Aizawl-Tipaimukh line, 132 kV Jiribam(PG)-Tipaimukh line tripped resulting in blackout of Tipaimukh S/S of Manipur.



As per DR analysis of 132 kV Jiribam(PG)-Tipaimukh line, solid B-E fault initiated at 23:41:33.831 Hrs and cleared on operation of DP, ZII within 100 msec from Jiribam end.

As per DR analysis of 132 kV Aizawl-Tipaimukh line, B phase fault cleared within 103 msec on operation of DP, ZI from Tipaimukh end.

Following observations:

i) Tripping of healthy 132 kV Jiribam(PG)-Tipaimukh line due to delayed fault clearing at Tipaimukh end (more than 100 msec) for 132 kV Aizawl-Tipaimukh line.

ii) 132 kV Jiribam-Tipaimukh line tripped from Jiribam end in 100 msec on operation of DP, ZII. ZII time delay setting needs to be reviewed and set as per NER Protection philosophy.

MSPCL is requested to rectify the following issues-

i) PLCC in 132 kV Jiribam(PG)-Tipaimukh line to be made healthy.

ii) Delayed fault clearing time by CB (more than 100 msec) at Tipaimukh for Aizwal-Tipaimukh line.

POWERGRID is requested to share the actual root cause of multiple tripping of 132 kV Aizawl-Tipaimukh line.

Deliberation of the sub-committee

MSPCL updated, regarding PLCC in 132kV Jiribam- Tipaimukh line, that PLCC card replacement is to be done this month.

After detailed deliberation the forum requested –

1. MSPCL to test the distance relay and conduct timing test of CB at Tipaimukh end for Aizawl line and address the issue of delayed clearance on Z1.
2. NERTS to increase the Zone II time delay to 150 msec for 132 kV Jiribam-Tipaimukh line considering Max fault clearance time of 132 kV level within 160 msec as per CEA.

Additional Agenda from NERLDC

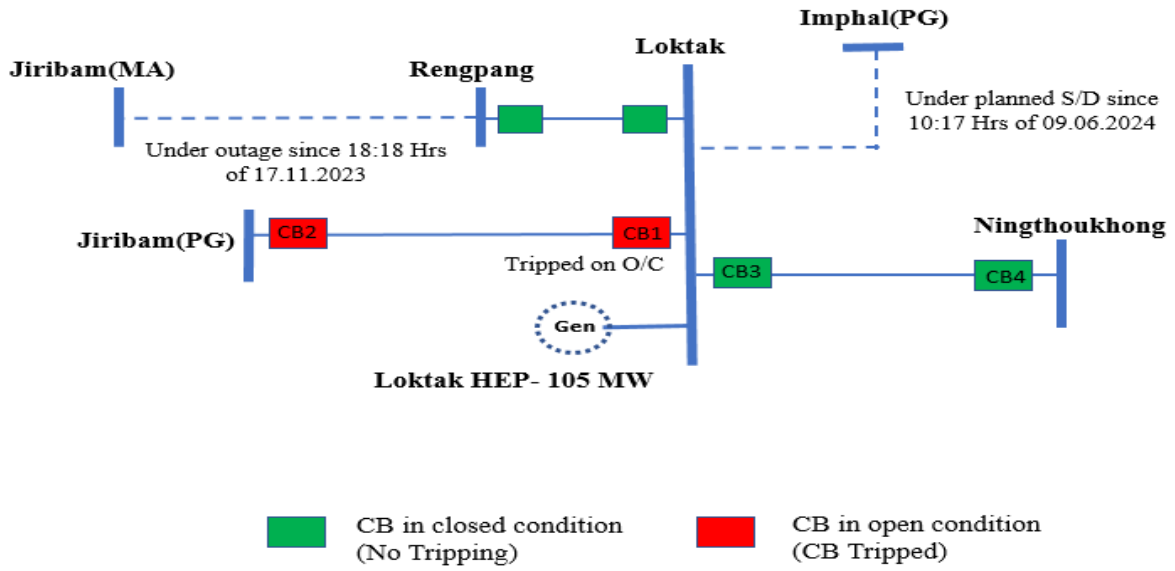
Grid Disturbance in Loktak HEP on 09-06-2024:

Loktak generating station of NHPC is connected with rest of NER Grid through 132 kV Loktak-Rengpang (radial), 132 kV Loktak-Imphal(PG), 132 kV Loktak-Jiribam(PG) & 132 kV Loktak-Ningthoukhong lines.

Pre-condition: To facilitate the planned shutdown of 132 kV Imphal (PG) bus, 132 kV Imphal(PG)-Ningthoukhong line went under planned shutdown at 10:17 Hrs & 132 kV Imphal(PG)-Loktak line went under planned shutdown at 10:31 Hrs of 09.06.2024.

Event 1:

Loktak HEP was generating 105 MW and power flow of 54 MW in 132 kV Loktak-Jiribam (PG) Line and remaining 70 MW in 132 kV Loktak-Ningthoukhong Line.

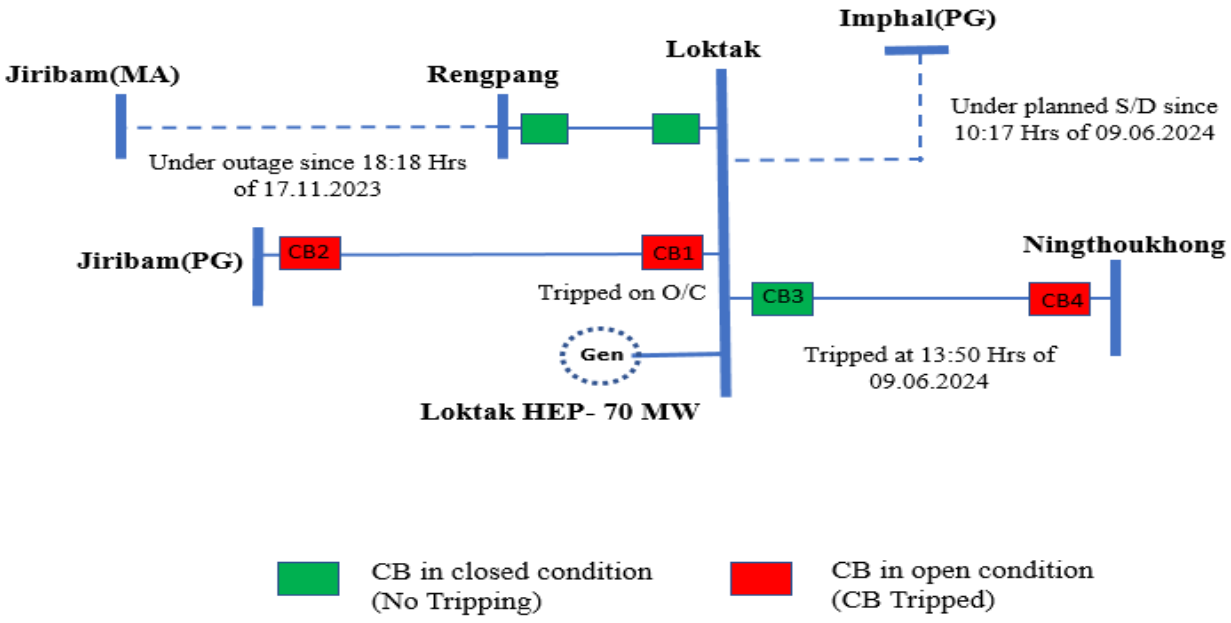


At 10:32 Hrs of 09-06-2024, 132 kV Loktak-Jiribam(PG) line tripped from Loktak end on Overcurrent due to which 132 kV Loktak-Ningthoukhong line got overloaded and subsequently all three units of Loktak tripped leading to generation loss of 105 MW.

Event 2:

Loktak HEP was generating 70 MW and power flow of 12 MW in 132 kV Loktak-Jiribam(PG) Line and remaining 56 MW in 132 kV Loktak-Ningthoukhong Line.

Prior to the event, at 13:50 Hrs of 09-06-2024, 132 kV Loktak-Ningthoukhong line tripped. As per DR analysis, B-E fault started and cleared within 80 msec from Ningthoukhong end on operation of DP, ZI.



At 13:53 Hrs of 09-06-2024, 132 kV Loktak-Jiribam(PG) Line tripped from Loktak end on Overcurrent which led to tripping of all units of Loktak leading to generation loss of 70 MW.

Following Observations shared by NERLDC on 9th June24:

- Only 212 A current has been recorded at Loktak for 132 kV Loktak-Jiribam (PG) Line. Therefore, tripping of 132 kV Loktak-Jiribam(PG) line on Overcurrent is inferred to be NUISSANCE TRIPPING.
- NHPC may check the setting and implement as per NER philosophy to prevent repetition. Flash Report & Detailed report of the events (as per IEGC) not submitted.
- DR/EL of 132 kV Loktak-Ningthoukhong line for Event 1 not submitted by MSPCL.

Loktak may update the root cause and measures

Deliberation of the sub-committee

NERLDC highlighted the Nuisance tripping of 132 kV Loktak-Jiribam Line from Loktak with current of 210-230 A, which led to GD at Loktak twice. Loktak informed that Overcurrent setting of 132 kV Loktak-Jiribam line will be checked and rectified shortly.

C. FOLLOW–UP AGENDA ITEMS

C.1 Submission of monthly and quarterly progress report by respondents of NERLDC's Petition:

As per the Direction of Hon'ble commission related to the Petition No 198/MP/2020, 259/MP/2020, 535/MP/2020, 539/MP/2020 and 540/MP/2020, respective respondents have to submit the **monthly/quarterly progress report** of the action plan prepared by the respective respondents in consultation with the Petitioner (i.e. NERLDC) to NERPC.

Order dated	Petition No	Respondent
08-Nov-2023	198/MP/2020	DoP, Arunachal Pradesh
	259/MP/2020	DoP, Nagaland
	539/MP/2020	MSPCL
27-Oct-2023	535/MP/2020	TPTL/TSECL
	540/MP/2020	P&ED, Mizoram

All the respondents are requested to share the monthly/Quarterly progress report for the month of Dec'23.

In 63rd PCCM, MS, NERPC stated that Hon'ble CERC (in above mentioned Petition) has directed the following:

NERPC shall monitor the work of the implementation of the Protection system by the Department of Power, Arunachal Pradesh; Department of Power, Nagaland, MSPCL, TPTL/TSECL, P&ED, Mizoram and shall submit a quarterly progress report to the Commission till the establishment of the Protection system at the substations identified by the NERLDC.

NERPC shall validate relay settings and conduct the Protection Audit of the associated transmission system at the substation and transmission lines, as and when required. Any issue faced during the implementation of Protection system or observed during the protection audit shall be discussed in the Protection Sub-Committee meeting at the RPC forum and sorted out. Concerned Power department /State shall identify one person from their top management as a nodal officer, who shall submit a monthly progress report on the implementation of the protection

system to the NERPC and NERLDC, till the establishment of the Protection system at the substations identified by the NERLDC.

In this regard, Member Secretary strongly urged the concerned States to appoint a nodal officer at SE and above level who shall submit a monthly progress report on the implementation of the protection system to NERPC and NERLDC. The monthly progress report will be monitored at PCC forum. He requested the States to send monthly progress report and action plan accordingly.

In 67th PCCM, AEGCL updated that Nodal officer for submission of work progress report has been nominated. Forum requested DoP Arunachal Pradesh to submit the nomination of Nodal officers to NERPC.

DoP Nagaland stated that work progress for the months of March'24 and April'24 have been submitted to NERPC.

NERPC stated that the quarterly work progress report has been prepared and will be sent to CERC shortly.

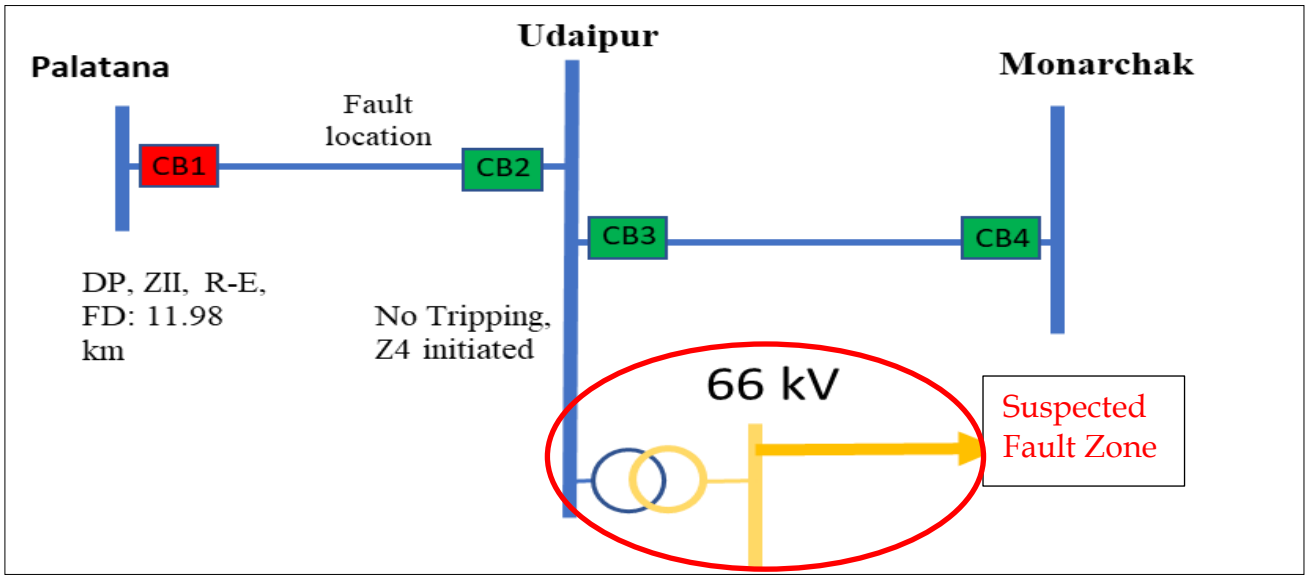
Deliberation of the sub-committee

MS, NERPC stated that the quarterly work progress report has already been sent to CERC.

DoP Ar. Pradesh updated that the nodal officer had been nominated and the details would be intimated to NERPC shortly.

C.2 Fault in downstream system of Udaipur area of Tripura power system on 31-Mar-2024:

132 kV Udaipur SS is connected through 132 kV Palatana-Udaipur & 132 kV Monarchak- Udaipur Line.



At 07:37 Hrs on 31-03-2024, 132 kV Palatana – Udaipur line tripped at Palatana end on operation of DP, ZII, R-E, FD: 11.98 Km.

However, no tripping & DP, Z4 initiation (reverse fault) at the Udaipur end indicates the fault was in the downstream of the Udaipur SS.

Therefore, TPTL/TSECL is requested to inform the root cause and remedial measures that has been taken to prevent reoccurrence of the event.

In 66th PCCM, NERPC highlighted that for downstream fault at Udaipur, CB3 should also show ZIV. Matter could not be further discussed as TSECL was not present in the meeting. MS, NERPC exhorted TSECL to provide detailed report and action taken report on the matter at the earliest to NERPC and NERLDC.

In 67th PCCM, TSECL informed that fault occurred in downstream 66 kV lines due to heavy wind. Regarding protection system of 66 kV system and 132/66 kV transformer, the forum exhorted TSECL to provide the details of protection system to NERPC and NERLDC. TSECL assured to provide the same shortly.

Forum also noted that non-clearance or delayed clearance of downstream faults at Udaipur SS had caused unwanted tripping at Monarchak and Palatana generator ends which have had detrimental effects on the generators. Forum strongly urged TSECL to take urgent actions to strengthen the downstream protection system.

Deliberation of the sub-committee

TSECL updated that the details of downstream protection system would be sent shortly to NERPC and NERLDC. The forum strongly urged TSECL to take urgent actions to strengthen downstream protection system.

C.3 Frequent Grid disturbances in Myndtu Leshka HEP of Meghalaya Power System:

132kV Myntdu Leshka - Khlieriat D/C lines play a crucial role in power evacuation from Leshka Generation. In the recent past it has been observed that 132 kV Myntdu Leshka-Khleihriat 1 & 2 lines has tripped **four** times in a short interval of time i.e. from April 15th to April 29th, 2024.

Also, 3 more GDs on May'24 *(05-May-2024 16:06 Hrs., 02-May-2024 04:10 Hrs. and 02-May-2024 00:45 Hrs.)*

Frequent tripping of the above lines is a matter of serious concern, and it signals that there is the requirement of proper and regular maintenance of these transmission elements. Moreover, it impacts the lifespan of machine in long run and reduces the reliability of evacuation path of Leshka HEP of Meghalaya Power System. Therefore, MePTCL is requested to ensure that patrolling related activities are undertaken as per CEA (Grid Standard) Regulation, 2010 on regular basis and measures may be identified and implemented at the earliest so as minimize tripping of these lines. A copy of measures taken in this regard may be shared to NERPC & NERLDC.

Further, following observations needs early redressal

5. There was no Auto reclose attempt observed. The auto-reclose (A/R) scheme should be inspected and activated to ensure the safe evacuation of Leshka generation by reclosing the line in case of single-phase fault.
6. DR channels needs to be standardized both ends:
    - DR time duration of 500 msec appears to be insufficient at Khliehriat. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds.
    - DR time not synchronized, exhibiting a time drift issue of 39 minutes at Leshka and 1 minute at Khlieriat.
    - CB status is currently not allocated in the DR digital channel. It's essential for MePTCL and MePGCL to include CB ON/OFF status in DR channels at both ends for fruitful analysis of events

MePTCL may update the root cause and remedial measures taken.

In 67th PCCM, MePGCL updated that most of the trippings occurred due to lightening faults. Forum urged that single phase auto-recloser need to be implemented in 132 kV Leshka-Khleihriat D/C lines to avoid loss of evacuation path

of Leshka generation. MePGCL stated that the matter will be discussed internally first.

MePGCL also assured to standardize DR at both ends with GPS time synchronization shortly.

Deliberation of the sub-committee

After detailed deliberation the forum strongly requested MePGCL to commission single phase auto reclosure and TLSAs on the line.

C.4 Backup Relay Coordination Related Issue observed at Rupai SS on 07-04-2024:

At 19:45 Hrs. of 07-04-2024, 132 kV Chapakowa-Rupai tripped.

Sl. No.	नाम	Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	132 kV Chapakowa-Rupai line	19:45	22:12	DT received	EF operated, DP, ZII initiated

132 kV Chapakowa-Rupai line sensed B-E fault at 19:43:14.845 hrs. from Rupai end and cleared the fault on operation Backup in 220 msecs which seems backup setting coordination issue.

In 67th PCCM, AEGCL stated that DEF was ON in Main protection which cleared the fault in the line from Rupai end and consequently DT was sent to Chapakhowa end. The same will be rectified and B/U relay setting will be reviewed shortly.

Regarding ROT of the B/U protection at Rupai end, AEGCL stated that necessary coordination will be done shortly.

Deliberation of the sub-committee

AEGCL informed that DEF which was ON in main protection has been disabled. Also, B/U protection TMS has been coordinated based on present fault current and changed to 0.3.

C.5 Mapping of SPS in the SCADA Display for real time monitoring of all SPS:

NLDC has submitted the Guidelines on “Interfacing Requirements” after stakeholder consultation for approval of the Commission as mentioned in the Regulation 7.4, read with Regulation 14.2 of the Communication System for inter-State transmission of electricity) Regulations,2017.

On dated 19-Jan-2024, CERC approved the guideline on "Interfacing Requirements" prepared by NLDC in consultation with the stakeholder.

As per the Guideline, real time telemetered is SPS Signal need to be monitored.

The digital status shall be as per IEC standard. Digital Status for circuit breaker must be double point while isolator status can be either single point or double point as per end device. All users shall comply with interface requirements as specified and shall share interface details with respective Control Centre.

Sl. No.	Description	Analog Points	Digital Points	Protection Signal
1	SPS Signal		DIGITAL STATUS: Enable/Disable, Operated/No Operated (Condition/Logic Wise)	

At present, there are 18 numbers of SPS under operation and 2 numbers of SPS under implementation as listed tabulated below

SPS mapping status as update by utilities in 68th PCCM

Sl. No.	SPS under operation	Long term measures	SPS mapping status in SCADA (YES/No)
1	**Tripping of 400kV Palatana-Silchar D/C-** when both modules of Palatana are in service causes tripping of HV side breaker of 2x125 MVA, 400/132 kV ICT at Palatana	After commissioning of 400 kV Palatana - Surajmaninagar line-1, there is no requirement of this SPS and hence, it is to be kept OFF. However, the SPS at Palatana is to be kept ON during shut down of 400 kV Palatana-Surajmaninagar (ISTS) line-1	OTPC to do by Sept'24

2	Reverse power flow more than 60 MW from LV to HV side of 2 X 315 MVA, 400/220 kV Azara ICTs causes tripping of 400/220 kV, 2x315 MVA ICTs at Azara (AEGCL)	After upgradation of 220 kV BTPS-Salakati D/C lines. (Need to disable after system study of the present condition)	Coordination with GE is required. To be completed within 2 months
3	Tripping of 132 kV Umiam Stg-I to Umiam Stg-III D/C lines causes instantaneous load shedding near Mawphlang area	After commissioning of 220 kV Killing-Mawngap D/C lines and re-conductoring of 132kV Lumshnong-Panchgram line, SPS is kept OFF	No DI points available. Additional cards required, will take around 3 months
4	SPS related to overloading of 220kV BTPS- Salakati D/C- Tripping of 220kV Agia – Boko and 220kV Agia – Mirza	After upgradation of 220 kV BTPS-Salakati D/C lines, this SPS is kept OFF	Coordination with GE is required. To be completed within 2 months
5	**Related to the safe evacuation of power from BgTPP(NTPC) generation -** BGTPP generation reduction to 600 MW	-	Done
6	**Related to Generation evacuation from Monarchak(NEEPCO) Power Plant -** Tripping of STG at Monarchak under outage of any one circuit of 132 kV Monarchak – Rokhia line & 132 kV Monarchak- Udaipur	Commissioning of 132 kV Monarchak-Surajmaninagar line	NEEPCO-configuration by BHEL to be done inJuly'24
7	Outage of 220 kV BTPS (Salakati) – Rangia I & II - load shedding	Commissioning of 400 kV Rangia SS and LILO of 400 kV Bongaigaon-Balipara 1 & 2 Line at Rangia.	Coordination with GE is required. To be completed within 2 months

8	**Related to the tripping of Bus Reactors at 400 kV S M Nagar (ISTS)** - Tripping of both circuits of 400 kV SM Nagar-PK Bari D/C will trip 2 x 125 MVAR Bus Reactors at SM Nagar (ISTS) to prevent under voltage situation	-	(absent in the meeting)
9	**Related to the tripping of Bus Reactors at 400 kV P K Bari (ISTS)** - Tripping of both circuits of 400kV PK Bari (ISTS) – Silchar(PG) D/C will trip 2 x 125 MVAR Bus Reactors at P K Bari(ISTS) to prevent under voltage situation	-	(absent in the meeting)
10	**Related to the tripping of Bus Reactors at 400 kV Imphal (PG)** - Tripping of 400 kV New Kohima – Imphal D/C during outage of 400 kV Silchar – Imphal D/C will lead to the tripping of 125 MVAR and 80 MVAR Bus Reactor at Imphal(PG)	-	NERTS assured to do in upcoming Shutdown
11	**Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station** - Disconnection of One Unit of Panyor (135 MW) and One Unit of Pare (55 MW)	After restoration of 132 kV Panyor -Itanagar & 132 kV Panyor -Pare line (expected by 31st Mar'24)	Will be checked whether to disable or not. NEEPCO to implement by next month
12	**SPS related to outage of 220 kV Azara-Sarusajai DC/220 kV Misa-Samaguri DC** - **1) On tripping of 220 kV Azara-Sarusajai D/C:** 140-150 MW load disconnection is to be done at	Commissioning of 400 kV Sonapur Substation. LILO of 400 kV Bongaigaon-Byrnihat Line at Sonapur.	Template prepared by the OEM. Mapping to be done at Sarusajai

	Sarusajai and Kahilipara areas **2) On tripping of 220 kV Misa-Samaguri DC:** Load reduction of 50-60 MW at Samaguri area		first, then to other substaions. AEGCL informed that it will be done by July'24
13	**SPS related to the outage of 132 kV Panyor HEP-Ziro Line** - Tripping of 132 kV Panyor-Ziro will cause disconnection of 33kV Load at Ziro	Commissioning of 132 kV Khupi - Along Link/220 kV AGBPS-Namsai D/C	1 month
14	Related to outage of any one circuit of 132 kV Dimapur(PG)- Dimapur(NA) D/C	Reconductoring of 132 kV Dimapur(PG)-Dimapur(NA) D/C	Done
15	Related to outage of any one circuit of 220 kV Balipara-Sonabil D/C	Reconductoring of 220 kV Balipara-Sonabil D/C lines with higher ampacity and Utilisation of 2 X 160 MVA ICTs at Balipara	AEGCL to implement within 2 months, by Sept'24
16	**Related to Outage of 400 kV Palatana – Surajmani Nagar line (charged at 132 kV)** - Tripping of 400 kV SM Nagar – Comilla D/C (charged at 132 kV) during outage of 400 kV Palatana – SM Nagar (TSECL) line (charged at 132 kV)	Upgradation of 132 kV Surajmaninagar (TSECL) to 400 kV	1 month
17	**Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana** - Entire load disconnection of South Comilla by way of tripping of 132kV SM Nagar-South Comilla D/C	Upgradation of 132 kV Surajmaninagar (TSECL) to 400 kV	1 month

18	Related to the outage of any one circuit of the 132 KV Khliehriat (PG)-Khliehriat D/C line	Reconductoring of 132 KV Khliehriat (PG)-Khliehriat D/C line	No DI points available. Additional cards required, will take around 2 months

Sl. No.	SPS under implementation	Long term measures
1	Related to outage of any one circuit of 132 kV Leshka – Khliehriat D/C	Reconductoring of 132 kV Khliehriat – Leshka D/C
2	Related to Outage of one circuit of 400 kV Surajmani Nagar (TSECL)-South Comilla line (Charged at 132 kV)	Upgradation of Comilla SS to 400 kV level

In 65th PCCM, NERLDC gave a ppt presentation on the guideline on interfacing requirement as approved by CERC. Forum noted the guidelines and requested the concerned stakeholders to take necessary measures to ensure mapping of SPS signals in SCADA for real time monitoring.

Sub-committee noted as above

C.6 Mock testing of the System Protection Scheme (SPS) of the NER:

New IEGC highlighted the need for mock testing of the SPS for reviewing SPS parameters & functions, at least once in a year under the regulation 16 (2) of IEGC 2023.

As per the discussion in the 63rd PCCM, NERLDC has prepared draft procedure for testing of SPS at Samaguri substation at Assam.

All the utilities are requested to share Suggestions/comments on the draft procedure.

In 64th PCCM, NERLDC and AEGCL stated that mock SPS testing at Samaguri will be conducted on Sunday and shutdown of identified loads will be required for half an hour.

In 67th PCCM, AEGCL stated that APDCL is allowing shutdown in June'24. The mock testing will be done accordingly.

Deliberation of the sub-committee

AEGCL updated that mock testing would be done on 23rd June'24.

C.7 Status on remedial measures actions on non-operation of auto recloser in Important Grid Elements for transient faults occurred in last few months:

As updated in 68th PCCM

Sl No	Element Name	Time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility (67th PCCM)
1	220 kV NTPS - Tinsukia 1 Line	26-10-2023 16:37	DP,Z1,Earth fault,39km	B-Eph, Z-1, LA burst	No details provided	Completed
2	132 kV Agartala - Surajmaninagar 2 Line	17-11-2023 15:10	DP,ZI,Y-B,FD:5.81 km, AR successful	DP,ZI,R-Y,FD:11.98 KM	Surajmani nagar	PLCC and funding issue. Proposal to be prepared shortly
3	220 kV Mariani (AEGCL) - Samaguri Line	29-11-2023 15:10	DP, ZI, B-E	DP, ZI, B-E, FD: 16 km	Samaguri	This month, all the lines at Marini will be done

Sl No	Element Name	Time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility
4	132 kV Along-Pasighat Line	01-01-2024 04:48	DP, ZI, R-E, FD: 47.52 Km	DP, ZI, R-E, FD: 19.57 Km	Both ends	CB at Along replaced. AR operational.

SL No	Element Name	Tripping Date and Time	Relay Details_A	Relay Details_B	AR not Operated	Remarks from utility (67th PCCM)

5	220 kV Samaguri - Sonabil 2 Line	08-02-2024 05:37	DP, ZI, Y-E, FD: 10.4 Kms	DP, ZI, Y-E, FD:45.8km	Both ends	Done
6	220 kV Byrnihat - Misa 2 Line	23-02-2024 04:39	DP,ZI, Y-E, FD: 59.54 Km	DP,ZI, Y-E, FD: 81.019km (AR Successful)	Byrnihat	OEM to arrive next week to resolve the issue.

SL No	**Element Name**	**Tripping Date and Time**	**Restoration Date and Time**	**Relay_A**	**Relay_B**	**Auto-Recloser not Operated**	**Remarks as per 67th PCCM**
7	220 kV BALIPARA - SONABIL 2	POWERGRID & AEGCL	04-03-2024 13:06	04-03-2024 15:13	02:07:00	**Sonabil**	Done
8	132 kV Hailakandi - Silchar 2	23-03-2024 21:13	23-03-2024 22:00	DP, ZI, Y-E,FD:8.3 KM	DP, ZI, Y-E,FD: 24.69 KM	Hailakandi	AR failed due to CB unhealthy issue. The same has been resolved
9	132 kV Gohpur - North Lakhimpur 1	26-03-2024 05:55	26-03-2024 06:12	DP, ZI, R-E, FD: 4.1km	DP, ZI, R-E	Both ends	AR implemented at N. Lakhimpur. And AR to be configured at Gohpur by this month
10	132 kV Tenga - Khupi	26-03-2024 07:35	26-03-2024 12:25	DP, ZI, R-B-E, FD: 30km	DP, ZI, R-B-E, FD:4.9 km	Khupi	B/U relay disabled, to be reapleced this month

11	220 kV Mawngap - New Shillong 1	26-03-2024 12:22	26-03-2024 19:31	DP, ZI, Y-E, FD: 27.82 Km	DP, ZI, Y-E	Mawngap	BB malopretaion issue
12	132 kV Dimapur - Doyang 2	29-03-2024 13:10	29-03-2024 13:31	DP, Z1, R-Y, FD: 72.6km	DP, Z1, R-Y	Doyang	CB procurement underway. By March'25
13	220KV-MAWNGAP-BYRNIHAT (KILLING)-1	31-03-2024 16:31	31-03-2024 17:35	DP, ZII, Y-E, FD: 70.65Km(Carrier Aided Tripping)	DP, ZI, B-E, FD: 14.4 Km	Both Ends	Fault in reclaim time
14	400 kV Byrnihat - Silchar	31-03-2024 20:51	31-03-2024 22:29	DP, ZI, Y-E, FD: 68.7 km	DP,ZI, Y-E,FD: 175.11 KM	Both Ends	Relay replaced

Sub-committee noted as above.

C.8 132 kV Kumarghat - P.K. Bari issue

POWERGRID has commissioned Line Diff Relay for 132kV Kumarghat PK Bari feeder. During commissioning, following issues have been noted at PK Bari end: -

1. AR kept OFF at PK Bari end by Tripura, however, the same is in ON Position at Kumarghat end.
2. Due to previous experience of multiple tripping at Kumarghat because of fault in P.K. Bari-Dharmanagar feeder & non isolation of the fault by P.K. Bari end CB, previously it was decided that Zone Timer for 132kV Kumarghat-P.K. Bari feeder (at Kumarghat end) shall be kept as under: -

a. Z1 = 0 msec
b. Z2 = 200 msec
c. Z3 = 300 msec

Tripura may please confirm the healthiness of the CBs (PK Bari end CB for Kumarghat PK Bari & P.K. Bari end CB for P.K. Bari-Dharmanagar feeder) otherwise forum may allow continuing the above Time delay setting for respective Zones of Distance Protection in 132kV Kumarghat-P K Bari Line at Kumarghat end.

In 62nd PCCM, Forum approved above stated time delay setting till TSECL checks and confirms the healthiness of the CBs (PK Bari end CB for Kumarghat PK Bari & P.K. Bari end CB for P.K. Bari-Dharmanagar feeder).

TSECL assured the forum to check the healthiness at the earliest.

In 63rd PCCM, TSECL informed that there is some issue with CB at PK Bari for Dharmanagar. Testing equipment has been received and test will be done soon.

Forum requested TSECL to confirm CB healthiness status after testing within Feb24.

In 64th PCCM, TSECL stated that protection team will visit P K Bari substation in Feb'24 to inspect and rectify the issue.

In 65th PCCM, TSECL updated that shutdown of the PK Bari-Dharmanagar line is scheduled in March'24, required work will be carried out during the shutdown.

In 67th PCCM, TSECL updated that the matter to be resolved by next PCCM.

Deliberation of the sub-committee

TSECL updated that the shutdown of the PK Bari-Dharmanagar line was not planned yet. Work will be done in upcoming shutdown.

C.9 PLCC issues follow up:

a. PLCC/DTPC needs to be implemented in below stated lines –

1. 132 kV Dimapur Kohima
2. 132 kV Nirjuli Lekhi
3. 132 kV Melriat - Zemabwk

b. 400 kV Mariani Kohima Ckt #2 - For 400 kV Mariani-Kohima Ckt-2, ABB make PLCC Model no-ETL41 is installed at both ends. PLCC panels at both ends are owned by KMTL. At Mariani end, for PLCC Ch#1, alarm is persisting in P4LA card. KMTL had previously deputed service engineer for rectification of the issue in Oct 2022.The issue was resolved in Oct 2022. However, the same issue had resurfaced again from 24th August 2023. Repeated communication has been sent to KMTL to resolve the issue. However, rectification action is still pending.

c. 132 kV Roing - Pasighat – PLCC panels for 132kV Roing -Pasighat feeder are installed at both ends. Panels are in healthy condition at both ends. However, due to non-availability of healthy 48V dc supply at Pasighat end, PLCC panels at Pasighat are in OFF State. DoP AP is requested to arrange healthy 48V dc supply at Pasighat end.

Update as provided by utilities in 68th PCCM

Sl. No	Line	Utility	Update
1	132 kV Dimapur-Kohima	DoP Nagaland	DPR is complete except for budgetary offer. Waiting for the same
2	132 kV Nirhuli-Lekhi	DoP Ar. Pradesh	Done
3	132 kV Melriat-Zemabawk	Mizoram	NERTS updated that PLCC is available, Mizoram stated that CVT is available and WT has to be procured. Mizoram further updated that DTPC is being planned instead of PLCC. Forum suggested to ensure both PLCC and DTPC. POWERGRID shall install only the PLCC after installation of CVT & Wave Trap at Zemabwk end by Mizoram
4	400 kV Mariani-Kohima ckt 2		resolved
5	132 kV Roing-Pashighat	DoP Ar. Pradesh	DoP Ar. Pradesh updated that there was issue with 48 V battery which would be replaced by July'24.

Sub-committee noted as above

D. ITEMS FOR STATUS UPDATE

D.1. Status of auto-reclosure on *z*-1 operation for important lines:

In the discussions of the Sub-group on 12-04-2021 the following points were noted:

a. Auto-Reclosure is very much required for maintaining system stability, reliability and uninterrupted power supply.

b. Presently it will take some time for the state utilities to implement the PLCC and establish carrier communication between stations.

c. The operation of Auto-Reclosure on Z-I operation at the local end independent of carrier healthiness is required.

In the 57th and 56th PCC meeting the forum approved the implementation of Auto-Reclosure on Z-1 without carrier check for all lines except the lines with generating stations at both the ends and requested the utilities to implement the AR scheme at the earliest.

Status as updated in 68th PCCM

Sl no	**State**	**Important Transmission lines where AR has to be enabled at the earliest**	**Status (67th/66th PCCM)**	**status as per 68th PCCM**
1.	Arunachal Pradesh	132kV Balipara-Tenga, 132kV Ziro-Daporijo-Along-Pashighat link	PLCC implementation under PSDF underway. SPAR have been enabled on the lines without PLCC 3-Ph AR will be enabled by March'24.	3 Ph AR enabled on the lines
2.	Assam	All 220kV and 132kV lines	For 220kV Some bays at Tinsukia, NTPS and Kathalguri remaining, to be done soon For 132kV bays Testing and enabling of AR is being done	Process underway. To be completed by July'24

			gradually, to be completed by June'24.	
3.	Manipur	132kV Imphal-Ningthounkong	DPR preparation underway, to be prepared by March'24	DPR under preparation. To be completed shortly.
4.	Meghalaya	**Annexure** (D.1)	August'24. Forum requested Meghalaya to provide monthly work progress report (around 25 number of 132kV line)	By August'24, will share the work progress report shortly
5.	Tripura	132kV Agartala-S M Nagar (TSECL), 132kV Agartal-Rokhia DC, 132kV, 132kV Agartala-Budhjungnagar	To be done during internal audit.	Aug'24

Sub-committee noted as above

D.2. <u>Installation of line differential protection for short lines:</u>

As per sub-regulation3 of Regulation 48 of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022-

"For short line (less than 10 km) or cable or combination of overhead line and cable, line differential protection shall be used with built-in backup distance protection."

As per discussion in 61st PCC meeting the status for different STUs/ISTS licensees are as follows:

Status as updated in 66th PCCM

Name of utility	**Last updated status (67th/66th PCCM)**	**status as per 68th PCCM**
AEGCL	AEGCL updated that PSDF monitoring group has suspended funding for LDP for 1 year. AEGCL requested MS, NERPC to take up with NPC, CEA to provide funding for the	MS, NERPC stated that a letter will be written to NPC/PSDF to the funding for the LDP considering the special case of NER.

	same considering the special case of NER	
MSPCL	DPR under preparation, to be submitted within one month.	DP under preparation, to be completed shortly
MePTCL	LDP operation for 9 feeders. For Neighrims-NEHU line, waiting for dark fiber. For other lines, OPGW not available commissioned after OPGW link is established. (**Annexure D.2**) 7 Feeder operational for rest OPGW work is pending OPGW to be installed on 16 lines. LDP will be enabled after that.	Regarding OPGW installation, MePTCL updated that DPR is being prepared for inclusion in reliable communication scheme. For NEHU-NEighrims line, fiber has to be laid by PowerGrid NERPSIP.
P&ED Mizoram	Lines identified 132kV Khamzawl - Khawiva. DPR being revised. Mizoram requested for assistance in preparation of DPR. Forum requested Assam to provide assistance to Mizoram in this regard.	Mizoram stated that DPR has been prepared (except for Cost estimate) with assistance of Assam. Cost estimate will be prepared shortly and DPR will DPR to be completed by July'24
DoP Nagaland	LDP Doyang-Sanis line, LDR to be installed by NEEPCO. NEEPCO stated that LDR is available with NEEPCO, however, healthiness of the OPGW link on the line has to be checked first. Forum asked DoP Nagaland to coordinate with NEEPCO in this regard	Forum requested DoP Nagaland to ensure one communication channel at Sanis end for OPGW communication and also ensure the availability of the FOTE. NERLDC ULDC to confirm the same.
TSECL	132kV 79 Tilla-Budhjungnagar. DPR to be prepared. Cost estimate submitted to TIDC to arrange for ADB funding.	TIDC approval still awaited. Regarding Rokhia-N.Rokhia link, he updated that the breaker has been received.

	TIDC approval is still awaited for fund.	MS, NERPC suggested to apply under PSDF

Sub-committee noted as above

D.3. Status against remedial actions for important grid events:

Status as updated in the 68th PCCM:

Sl No	Details of the events(outage)	Remedial action suggested	Name of the utility & previous update	status as per 68th PCCM
1.	132 kV Balipara-Tenga line in May and June	Carrier aided inter-tripping to be implemented for 132kV Balipara-Tenga-Khupi at the earliest (PLCC has to be installed on the link. Under consideration of the higher authorities)	DoP, Arunachal Pradesh. PLCC panels received. For further work PSDF payment issue. Matter to be taken up with PSDF	DoP updated that PSDF funding will be short closed due to long pending payment issues and delays. He further stated that state is considering funding of the project through its own funding. PLCC work to be tentatively completed by end of this year.
2.	132 kV DoyangMokokchung line 132 kV Mokokchung - Mokokchung (DoP, Nagaland) D/C lines on 30th July	Carrier inter-trip for 132kV DHEP-Mokokchung to be implemented by DoP Nagaland (NO PLCC on the line. Matter under consideration of Higher authorities)	DoP Nagaland (DPR is under preparation for PLCC, by March'24	DPR is being prepared for DTPC link on the line.
3.	Leshka-Khleihriat DC multiple tripping in April to September	TLSA installation along the line to be done by MePTCL	MePTCL (DPR submitted, Approval pending.)	DPR returned by PSDF.
4.	132 kV Loktak-Jiribam line, 132 kV Loktak-Imphalline,132 kV Loktak-Ningthoukhong	> 5MVA TRAFO (Aux. Transformer) to be repaired	NHPC Tender awarded, Order placed,	TX manufacturing underway. To

	line, 132 kV Loktak-Rengpang line & Loktak Units 1,2 and 3 on 3rdAug	->5MVA Auxiliary TRAFO panel to be repaired by NHPC	manufacturing underway.	be completed by Dec'24
5.	Grid Disturbance at Loktak HEP on 03rd Aug'22	NHPC-Loktak informed that LBB has been included under R&U scheme and the same shall be commissioned by Mar'23	NHPC (LBB to be commissioned under R&U project) Renovation would start in Nov.'24 and to be completed by Oct.'25. Forum stressed to take LBB on priority.	Same status, Forum requested to expedite it
6.	Outage of 220 KV Bus Bar Protection Scheme at 400/220/132 KV Killing SS	Bus-Bar protection of 220kV bus at Killing SS	MePTCL Order given to ABB. Visit of OEM next week. To be completed by April'24	BBR defective. Order placed in Oct'23, will arrive in around 7 months, i.e. by May or June'24
7.	Non-operation of AR for various lines at Byrnihaat end on 25th and 26th June'23	Rectification of PLCC issues by MePTCL Consultation with OEM underway for resolution	MePTCL Visit of OEM next week. To be completed by April'24	By May'24
8.	Tripping of 132kV Kahilipara- Sarusajai 1, 2 and 3 line, 132kV Kahilipara Main bus 1, 132kV Kahilipara transfer Bus 1 and 132kV Kahilipara-Kamalpur line on 2.08.2021	BB protection to be implemented at Kahilipara with procurement of 5 core CTs	AEGCL DPR is under preparation for PSDF. CT under procurement, to be completed by end of this year	By end of this year
9.	AR issue at Gohpur end for 132kV Nirjuli-Gohpur line	Panel replacement underway	AEGCL - By April'24	Panel commissioned in June 2024.
10.	Non-operation of AR at Doyang HEP	Pneumatic CBs to be replaced	NEEPCO- August 2024	March'25
11.	Generation evacuation issue at Leshka due to tripping of any line of 132kV Leshka-Khliehriat DC line	SPS to be implemented	MePGCL to implement the SPS by May'24	

12	Multiple trippings fn the lines connected to Leshka station in April'24 have been observed due to delayed clearance of faults in the link line (GT to Switchyard, 550 meters)	Differential protection on the link line to be implemented. Also, AR on the link line to be implemented	MePGCL To be discussed in internal OCC meeting first	
13	Multiple tripping of 132 kV Panchgram-Lumshnonong line in April'24 has been observed due to delayed clearance of downstream fault in Lumshnong	B/U protection settings coordination for the 132kV downstream industrial feeders has to be done	MePTCL To be done shortly	

Utilities may further update

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Annexure-I

List of Participants in the 68th PCC Meeting held on 13.06.2024

SN	Name & Designation	Organization	Contact No.
1	Sh. Moli Kamki, AE (E), SLDC	Ar. Pradesh	09863703539
2	Sh. Himangshu Das, AGM, APGCL	Assam	09435477842
3	Sh. Hemjyoti Deka, AGM, AEGCL	Assam	09435023770
4	Sh. Abhishek Kalita, Dy.Mgr, AEGCL	Assam	08486213068
5	Sh. Waikhom Jit Singh, DM, MSPCL	Manipur	07005520065
6	Sh. Okramcha Wangthoiba, Mgr, MSPCL	Manipur	07005264002
7	Sh. C.Daniela, EE	Mizoram	09774692350
8	Sh. Lalawmpuia Chawngthu, AE	Mizoram	08730843706
9	Sh. A.G.Tham, AEE, MePTCL	Meghalaya	09774664034
10	Sh. A.Shullai, AEE, MePGCL	Meghalaya	07005379616
11	Sh. K.Kynjing, AEE, MePTCL	Meghalaya	-
12	Sh. Namheu Khate, EE (Trans.)	Nagaland	09436000800
13	Sh. S.I.Asangba Tikhir, EE, SLDC	Nagaland	06909546993
14	Sh. Rokobeito Iralu, S.D.O (Trans.)	Nagaland	09436832020
	-	Tripura	-
15	Sh. Krishnadhan Biswas, Sr.Mgr	TPTL	09862478930
16	Sh. Bimal Swargiary, DGM	NERLDC	09435499779
17	Sh. Subhra Ghosh, AM	NERLDC	08415857079
18	Sh. Manash Jyoti Baishya, Ch.Manager	PGCIL	09435555740
19	Sh. Manas Pratim Sharma, Sr.Mgr	NEEPCO	08729901871
20	Sh. M. Talukdar, DGM	NEEPCO	09435339690
21	Sh. Sanjib Pal, Section Head-PME	OTPC	09436583737
22	Sh. Prashant Kr. Sammeta, Sr.Mgr	NTPC	09425281388
23	Sh. Dayanand PD,Yadav, Sr.Mgr (E), Loktak	NHPC	09800003465
24	Sh. Soumya Sur, Team Lead (PSS)	PRDC	09007934696
25	Sh. Basab Maity, Engg.(PSS)	PRDC	09732416233
26	Sh. K.B.Jagtap, Member Secretary	NERPC	-
27	Sh. Abhijeet Agrawal, DD	NERPC	9871266951
28	Sh. Vikash Shankar, AD-I	NERPC	09455331756

Annexure B.4

Sl No	Event	GD/GI/ Near miss	Date & Time	Root cause	Recommendations
1	Rhongkhon, Ampati & Phulbari Areas of Meghalaya	GD-I	02-05-2024 01:12	Radially fed Ronkhong, Ampati & Phulbari areas affected due to Y-E fault in 132 kV Nangalbibra-Rongkhon line Cause of tripping could be due to vegetation.	MePTCL: 1. need to ensure proper maintenance of the lines to reduce tripping of elements due to vegetation issues 2. Availability of AR scheme to avoid grid Disturbance due to transient nature of fault
2	Lumshnong S/S of Meghalaya	GD-I	02-05-2024 07:01	Radially fed Lumshnong areas affected due to R-E fault in 132 kV Lumshnong-Panchgram line cleared within 151 msec on operation of DP, ZII from Panchgram. ZIV start at Lumshnong(no tripping) Fault is suspected in 132 kV Amrit or 132 kV Adhunik Cement line.	1. Protection setting coordination for 132 kV Amrit & 132 kV Adhunik Cement needs to be done by MePTCL. Forum suggested MePTCL to enable High set for B/U protection of 132 kV Amrit & 132 kV Adhunik Cement. 2. Implementation status of carrier aided protection in 132 kV Lumshnong-Panchgram line to be updated by AEGCL and MePTCL. 3. Forum suggested AEGCL to increase ZII time delay at Panchgram to 250 msec for 132 kV Panchgram-Lumshnong line. 4. DR time not matching at Panchgram end which needs to be checked by AEGCL. 5. SOE not recorded.
3	Monarchak Generating station (NEEPCO) and Rabindranagar of Tripura	GD-I	02-05-2024 18:48	B-E fault in 132 kV Monarchak-Udaipur line cleared within 61 msec on operation of DP, ZI from Monarchak end. Auto recloser was successful from Udaipur end.	1. DR time duration is insufficient at Udaipur. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds. 2. DR time drift of 10 min at Monarchak & 8 min at Udaipur. NEEPCO informed there was GPS clock issue which has been rectified.
4	Leshka HEP of Meghalaya Power System	GD-I	02-05-2024 00:45	Leshka generation affected due to tripping of 132 kV Leshka-Khliehria D/C lines. Tripping was observed at Khliehriat end with DP operation with Zone-2, indicating that the fault was near to Leshka S/S. OC optd as per DR at Leshka for 132 kV Leshka-Khliehriat I	1. There was no Auto reclose attempt observed. MePGCL informed that a meeting will be held with State protection Committee regarding implementation of Auto recloser in 132 kV Leshka-Khliehriat D/C lines. 2. ZII time delay at Khliehriat need to be as per NERPC protection philosophy. 3. DR time duration of 800 msec appears to be insufficient at Leshka; CB status is currently not allocated in the DR digital channel; Neutral current channel needs to be configured in DR digital channel at Leshka end. 4. DR time not synchronised, exhibiting a time drift issue of 13 min at Leshka 5. TLSA installation may be carried out.
5	Leshka HEP of Meghalaya Power System	GD-I	02-05-2024 04:11	**Likely lightning fault** R-B-E phase fault initiated at 04:11:24.683 Hrs which was cleared on operation of DP, ZI within 65 msec from Khlehriat end. There was no tripping from Leshka end.	1. DR time duration of 500 msec appears to be insufficient at Leshka; CB status is currently not allocated in the DR digital channel; Neutral current channel needs to be configured in DR digital channel at Leshka end. 2. Time drift of 12 min at Leshka for Line-1 & 40 min at Leshka end for Line-2 3. TLSA installation may be carried out.

Sl No	Event	GD/GI/ Near miss	Date & Time	Root cause	Recommendations
6	Cherapunji Area of Meghalaya Power System	GD-I	02-05-2024 02:51	R-E fault in 132 kV Mawlai-Cherapunji line cleared within 60 msec on operation of DP, ZI from Mawlai end	1. MePTCL to ensure availability of AR scheme to avoid grid Disturbance due to transient nature of fault 2. MePTCL to ensure proper maintenance of the lines.
7	Pasighat Area of Arunachal Pradesh	GD-I	02-05-2024 19:26	**High resistive** B-E phase fault in 132 kV Pasighat- Roing line cleared on operation of Directional Earth fault within 1.8 sec from Roing end	DoP Arunachal Pradesh to ensure patrolling and maintenance as per CEA regulations
8	Ampati and Pulbari substation of Meghalaya	GD-I	05-05-2024 12:27	As per MePTCL, fault is suspected to be high resistive, transient fault in 132 kV Ampati-Phulbari line. 132 kV Rongkhon-Ampati line tripped from Ampati end on earth fault. No tripping from Rongkhon end.	1. B/U E/F setting at Ampati needs to be reviewed as there was no tripping from Rongkhon end. 2. Submit DR/EL 3. MePTCL to ensure availability of AR scheme to avoid grid disturbance due to transient nature of fault. 4. SOE not recorded which needs attention from MePTCL/SLDC Meghalaya team.
9	Zuangtui, saitual, Vankal and Khawzal area of Mizoram	GD-I	05-05-2024 04:13	Fault was in 132 kV Zuangtui-Saitual line. However, CB at Zuangtui for 132 kV Melriat-Zuangtui line tripped for reverse fault. As per P&ED Mizoram, fault in 132 kV Zuangtui-Saitual line due to touching of object in line due to wind.	1. Forum asked Mizoram to enable directionality (forward) feature in B/U O/C & E/F relay at Zuangtui end for 132 kV Melriat-Zuangtui line. 2. Submit DR/EL 3. DR needs to be standardized by P&ED Mizoram.
10	Tipaimukh area of Manipur	GD-I	05-05-2024 23:39	B-E fault in 132 kV Aizawl-Tipimukh line. While taking charging attempt of 132 kV Aizawl-Tipaimukh line, due to delayed fault clearing from Tipaimukh end (more than 100 msec), 132 kV Jiribam-Tipaimukh line tripped on ZII	POWERGRID & MSPCL: 1. ZII time delay setting of distance protection at Jiribam end needs to be reviewed and increased to around 150 msec. 2. PLCC is unhealthy in 132 kV Jiribam(PG)-Tipaimukh line which needs to be rectified by MSPCL. 3. Forum urged MSPCL to conduct timing test of relay at Tipaimukh.
11	Leshka HEP of Meghalaya Power System	GD-I	05-05-2024 16:06	**Fault is likely due to lightning** R-B-E phase fault cleared on operation of DP, ZI within 73 msecs from Khleihriat end. Also, DP, ZI operated at Leshka end.	1. DR time duration of 500 msec appears to be insufficient at Leshka. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds. 2. CB status is currently not allocated in the DR digital channel. It's essential for MePTCL and MePGCL to include CB ON/OFF status in DR channels at both ends for fruitful analysis of events. 3. Neutral current channel needs to be configured in DR digital channel at Leshka end. 4. SOE not recorded from Khleihriat end. 5. DR date and time at Leshka end not matching 6. TLSA installation may be carried out.

Sl No	Event	GD/GI/ Near miss	Date & Time	Root cause	Recommendations
12	Nangalbibra, Ronkhon and Ampati areas of Meghalaya Power System	GD-I	06-05-2024 05:21	**Fault is likely due to lighnting** at 05:17 Hrs, R-E fault in 132 kV Nangalbibra-Ronkhon line cleared on operation of DP, ZI. At 05:21 Hrs, R-Y-B-E fault in 132 kV Nangalbibra-Mendipathar line (ZIV pickup from Nangalbibra & ZII trip from Mendipathar end)	1. MePTCL to ensure availability of AR scheme to avoid grid Disturbance due to transient nature of fault. 2. TLSA installation may be carried out. 3. SOE not recorded which needs attention from MePTCL/SLDC Meghalaya.
13	Kongba, Thoubal New, Thoubal old areas of Manipur Power System	GD-I	12-05-2024 12:32	As per PMU, R-E fault appears in the system.	MSPCL: 1. Setting to be reviewed for tripping of 132 kV Yiangangpokpi-Kongba DC 2. DR &EL to be submitted for 132 kV Yaingangpokpi - Kongba 1&2 Line, 132 kV Thoubal New Kakching and 132 kV Thoubal old-Kakching line. 3. Submit flash report & detail report
14	Dhemaji and Silapathar areas of Assam Power System	GD-I	14-05-2024 13:36	Radially fed Dhemaji and Silapathar affected due to B-E fault in 132 kV North Lakhimpur-Dhemaji line cleared within 84 msec on operation of DP, ZI from North Lakhimpur end. (resistive fault)	1. DR time duration of 500 msec is insufficient at North Lakhimpur end. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds 2. Availability of AR scheme to avoid grid Disturbance due to transient nature of fault
15	Neigrihms area of Meghalaya power system	GD-I	16-05-2024 15:37	**Lightning fault** Radially fed NEIGRIHMS affected due to R-E fault in 132 kV Neigrihms-Nehu line cleared within 70 msec on operation of DP, ZI from NEHU end (132 kV Khliehriat-Neigrihms line was out prior to the event)	MePTCL to ensure availability of AR scheme to avoid grid Disturbance due to transient nature of fault
16	Nathkuchi area of Assam Power System	GD-I	17-05-2024 23:34	Fault in 132 kV Bornagar-Nathkuchi line (132 kV Rangia-Nathkuchi line was out) As per SOPR, flashover occurred	AEGCL to ensure availability of AR scheme to avoid grid Disturbance due to transient nature of fault
17	Barpeta area of Assam Power System	GD-I	17-05-2024 23:44	B-E fault in 132 kV Dhaligaon-Barpeta line (DP, ZI from Dhaligaon) As per SOPR, conductor snap	AEGCL to ensure availability of AR scheme to avoid grid Disturbance due to transient nature of fault
18	Gossaigaon area of Assam Power System	GD-I	18-05-2024 01:17	Radially fed Gossaigaon affected due to R-Y-N fault in 132 kV Dhaligaon-Gossaigaon line and cleared within 436 msec on operation of DP, ZII from Dhaligaon end and ZI from Gossaigaon end.	AEGCL need to rectify: 1. Carrier fail alarm recorded from starting of the fault 2. Ensure proper maintenance of the lines

Sl No	Event	GD/GI/ Near miss	Date & Time	Root cause	Recommendations
19	Serchip area of Mizoram power system	GD-I	21-05-2024 16:06	Solid Y-E fault in 132 kV Zuangtui-Serchhip line cleared on operation of DP, ZI within 60 msec from Zuangtui end.	P&ED Mizoram: 1. DR time duration of 1.5 sec is insufficient at Zuangtui end. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds. 2. Availability of AR scheme to avoid grid Disturbance due to transient nature of fault
20	New Shillong area of Meghalaya Power system	GD-I	21-05-2024 12:52	**Lightning fault** R-B-E fault in 220 kV Mawngap-New Shillong D/C	MePTCL 1. Tower footing resistance needs to be measured before onset of rainy season and if found greater than 10 Ohm, then necessary measures such as TLSA installation may be carried out
21	Rengpang area of Manipur Power system	GD-I	21-05-2024 20:22	Solid B-E fault in 132 kV Loktak-Rengpang line and cleared within 80 msec on operation of DP ZI from Loktak end.	MSPCL: 1. MSPCL is requested to ensure that patrolling related activities are undertaken as per CEA (Grid Standard) Regulation, 2010 2. Availability of AR scheme to avoid grid Disturbance due to transient nature of fault 3. Submit Flash report & detail report
22	Kohima area of Nagaland power system	GD-I	21-05-2024 16:42	High resistive B-E fault in 132 kV Dimapur-Kohima line cleared within 640 msec from Dimapur end. No tripping from Kohima end. CB at Zadima for 132 kV Kohima-Zadima line tripped on Earth fault	DoP Nagaland: 1. Backup E/F setting at Zadima for 132 kV Kohima-Zadima line needs to be reviewed by DoP Nagaland 2. Regular patrolling and maintenance related activities needs to be carried out as per various CEA/CERC regulations
23	Mustem area of Meghalaya power system	GD-I	23-05-2024 14:47	Fault in 132 kV Mawlyndep-Mustem line	MePTCL need to take action: 1. SOE not recorded for tripping of 132 kV Mawlyndep-Mustem Line. 2. Availability of AR scheme to avoid grid Disturbance due to transient nature of fault
24	Leshka HEP of Meghalaya Power System	GD-I	23-05-2024 14:05	**Fault is likely due to lightning** R-B-E fault in 132 kV Leshka-Khlehriat D/C lines cleared on operation of DP, ZI within 66 msecs from Khleihriat end. No tripping from Leshka end	MePGCL: 1. There was no Auto reclose attempt observed. The auto-reclose (A/R) scheme should be inspected and activated to ensure the safe evacuation of Leshka generation by reclosing the line in case of single phase fault. 2. CB status is currently not allocated in the DR digital channel. It's essential for MePTCL and MePGCL to include CB ON/OFF status in DR channels at both ends for fruitful analysis of events. 3. TLSA installation may be carried out.

Sl No	Event	GD/GI/ Near miss	Date & Time	Root cause	Recommendations
25	Kongba, Thoubal New, Thoubal old, Chandel, Kakching, Elangkangpokpi, Thanlon, Churachandpur and Moreh areas of Manipur Power System and Tamu load of Myanmar power system	GD-I	24-05-2024 14:44	Fault in 132 kV Yiangangpokpi-Kongba II line	MSPCL need to: 1. Submit FIR/DR/EL 2. SOE not recorded for tripping of 132 kV Yiangangpokpi - Kongba II line.
26	Rengpang area of Manipur Power system	GD-I	24-05-2024 16:23	B-E fault in 132 kV Loktak-Rengpang line cleared within 98 msec from Loktak on DP, ZI. AR unsuccessful at Loktak	MSPCL is requested to ensure that patrolling related activities are undertaken as per CEA (Grid Standard) Regulation, 2010 on regular basis
27	W0kha area of Nagaland power system	GD-I	24-05-2024 14:54	Fault in 132 kV Wokha-Chiephebozou line cleared on operation of DP, ZI within 70 msec from Wokha end and within 412 msec from Chiephebozou end on operation of DP, ZII.	DoP Nagaland: 1. Tripping of 132 kV Wokha-Sanis line from Wokha end on operation of backup protection for fault in 132 kV Wokha-Chiephebozou line (reverse fault) is unwanted. 2. Backup AVANA relay to be tested as the relay issuing trip command even after disabling of O/C & E/F relay 3. SOE not recorded for tripping of 132 kV Wokha-Chiephebozou line 4. DR time not matching at Wokha for both the lines; 2 min time drift at Chiephebozou
28	Daporijo, Basar & Along areas of Arunachal Pradesh Power System	GD-I	24-05-2024 09:53	Fault in 132 kV Ziro-Daporijo line	DoP AP & POWERGRID need to submit DR/EL at Ziro & Daporijo
29	Serchip area of Mizoram power system	GD-I	26-05-2024 09:34	Resistive R-E fault in 132 kV Zuangtui-Serchhip line and cleared within 322 msec from Zuangtui end on operation of earth fault	P&ED Mizoram: 1. DR time duration of 1.5 sec is insufficient at Zuangtui end. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds. 2. E/F setting of Zuangtui to be coordinated with ZIII time delay as per NERPC protection philosophy. 3. Availability of AR scheme to avoid grid Disturbance due to transient nature of fault. 4. Regular patrolling and maintenance related activities needs to be carried out as per various CEA/CERC regulations

Sl No	Event	GD/GI/ Near miss	Date & Time	Root cause	Recommendations
30	Serchip area of Mizoram power system	GD-I	26-05-2024 22:45	Resistive R-E fault in 132 kV Zuangtui-Serchhip line and cleared within 362 msec on operation of Earth fault from Zuangtui end. As reported by P&ED Mizoram, fault occurred due to fallen tree touching the line.	P&ED Mizoram: 1. DR time duration of 1.5 sec is insufficient at Zuangtui end. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds. 2. E/F setting of Zuangtui to be coordinated with ZIII time delay as per NERPC protection philosophy. 3. Availability of AR scheme to avoid grid Disturbance due to transient nature of fault 4. Regular patrolling and maintenance related activities needs to be carried out as per various CEA/CERC regulations
31	Wokha area of Nagaland power system	GD-I	26-05-2024 20:26	Y-B fault in 132 kV Wokha-Chiehphebozou line cleared on operation of DP, ZI within 80 msec from Wokha end and within 412 msec from Chiephebozou end on operation of DP, ZII. 132 kV Sanis-Wokha line tripped from Wokha end for reverse fault.	DoP Nagaland: 1. Tripping of 132 kV Wokha-Sanis line from Wokha end on operation of backup protection for fault in 132 kV Wokha-Chiephebozou line (reverse fault) is unwanted 2. Backup AVANA relay to be tested as the relay issuing trip command even after disabling of O/C & E/F relay 3. SOE not recorded for tripping of 132 kV Wokha-Chiephebozou & 132 kV Sanis-Wokha lines 4. DR time not matching at Wokha for 132 kV Wokha-Chiephebozou; 2 min time drift at Sanis for 132 kV Wokha-Sanis
32	Bornagar area of Assam Power System	GD-I	27-05-2024 01:04	High resistive B-E fault in 132 kV Dhaligaon-Bornagar line	AEGCL: 1. There was no Auto reclose attempt observed. The auto-reclose (A/R) scheme should be inspected and activated 2. Availability of AR scheme to avoid grid Disturbance due to transient nature of fault
33	Karong area of Manipur Power System	GD-I	28-05-2024 08:44	Suspected fault in downstream of Karong since ZIII pickup at Imphal & Kohima for 132 kV Imphal-Karong & 132 kV Karong-Kohima lines	MSPCL: 1. Protection system of downstream feeder at Karong failed to operate 2. B/U E/F time delay at Imphal(MA) for 132 kV Imphal(PG)-Karong line needs to be coordinated with ZIII setting as per NERPC protection philosophy. 3. Huge Time drift of about 27 min was observed from Imphal(MA) end DR for 132 kV Imphal(MA)-Karong line and 2 min was observed from Kohima end DR for 132 kV Karong-Kohima line 4. B/U relay DR needs to be submitted for proper analysis of the grid event.
34	Sarusajai, Kahelipara, Dispur, Narengi,Chandrapur,Jagiroad,Sonapur and Jawaharnagar areas of Assam Power System	GD-I	28-05-2024 02:50	Due to load loss at 33/11kV, most of the EHV Lines tripped on Overvoltage, Transformers tripped on Overfluxing.	

Sl No	Event	GD/GI/ Near miss	Date & Time	Root cause	Recommendations
35	Gauripur area of Assam Power System	GD-I	29-05-2024 02:49	R-B-E fault in 132 kV Bilasipara-Gauripur line	AEGCL need to ensure proper maintenance of the lines.
36	Kokrajhar area of Assam Power System	GD-I	29-05-2024 03:18	R-Y fault in 132 kV BTPS-Kokrajhar II line	AEGCL need to ensure proper maintenance of the lines.
37	New Shillong and Mawngap areas of Meghalaya Power System of NER	GD-I	29-05-2024 15:17	At 15:17 Hrs, R-Y-B-E **lightning fault** in 220 kV Mawngap-Killing D/C lines. At the same time, mal operation of Bus bar protection at Mawngap	Mal operation of Bus bar protection at Mawngap needs to be checked and rectified
38	Lumshnong S/S of Meghalaya	GD-I	30-05-2024 06:39	At 06:39 Hrs, R-Y-B fault initiated in 132 kV Panchgram-Lumshnong line at a distance of 20.5 Km from Lumshnong end which was cleared on operation of DP, ZI from Lumshnong. After 90 msec, Y-E fault reappeared (while CB still in OFF condition) causing LBB operation at Lumshnong leading to tripping of 132 kV Khliehirat-Lumshnong line. Fault cleared within 471 msec. As per information from MePTCL, arching must have occurred in the Y-ph interrupter pole.	MePTCL to keep LBB time delay setting to 200 msec as per NERPC protection philosophy.
39	Phulbari area of Meghalaya	GD-I	31-05-2024 13:44	132 kV Ampati-Phulbari line tripped	

Annexure C.1

Name of the line	Status as updated in 56/57th PCC meeting	Latest Status
132 kV Agia - Mendipathar	PLCC works completed. AR operation configuration to commence from March'22. Latest Status to be intimated.	
132 kV EPIP II - Byrnihat D/C		
132 kV EPIP II - Umtru D/C		
132 kV Kahilipara - Umtru D/C		
132 kV Khliehriat – Mustem		
132 kV Mustem - NEHU line		
132 kV Khliehriat (MePTCL) - Khliehriat (PG) Ckt#II		
132 kV Khliehriat- NEIGRIHMS		
132 kV NEHU – Mawlai		
132 kV Mawlai - Umiam Stage I		
132 kV Mawphlang - Nongstoin		
132 kV Mawphlang - Umiam Stg I D/C		
132 kV Mawphlang- Mawlai		
132 kV Mendipathar – Nangalbibra		
132 kV Myntdu Leshka - Khleihriat D/C		
132 kV Nangalbibra – Nongstoin		
132 kV NEHU – NEIGRIHMS		
132 kV NEHU – Umiam		
132 kV Sarusajai - Umtru D/C		
132 kV Umiam - Umiam St I	By March'22	
132 kV Umiam St I - Umiam St II		
132 kV Umiam St I - Umiam St III D/C		
132 kV Umiam St III -Umiam St IV D/C		
132 kV Umiam St III - Umtru D/C		
132 kV Umtru - Umiam St IV D/C		

MePTCL

STATUS OF LINE DIFFERENTIAL PROTECTION PROJECT UNDER PSDF

Sl. No	Feeder Name	Installation		Commissioning	Remarks
		End A	End B		
1	EPIP-I - EPIP II Line I	Completed	Completed	Completed	
2	EPIP-I - EPIP II Line II	Completed	Completed	Completed	
3	EPIP -I - Killing Line I	Completed	Completed	Not Completed	Fiber Network Not Available
4	EPIP -I - Killing Line II	Completed	Completed	Not Completed	
5	EPIP -I - M/S Maithan Alloy	Completed	Completed	Not Completed	
6	EPIP -I - Shyam Century	Completed	Completed	Not Completed	
7	EPIP-II - Umtru Line I	Completed	Completed	Completed	
8	EPIP-II - Umtru Line II	Completed	Completed	Completed	
9	EPIP II - New Umtru	Completed	Completed	Completed	
10	EPIP II - Killing Line I	Completed	Completed	Not Completed	Fiber Network Not Available
11	EPIP II - Killing Line II	Completed	Completed	Not Completed	
12	Umtru- New Umtru	Completed	Completed	Completed	
13	LUMSHNONG- M/S MCL	Completed	Completed	Not Completed	Fiber Network Not Available
14	LumSHNONG- M/S ACL	Completed	Completed	Not Completed	
15	Lumshnong - M/S MPL	Completed	Completed	Not Completed	
16	UMIAM - Stage I	Completed	Completed	Not Completed	
17	Umiam - NEHU	Completed	Completed	Completed	
18	UMIAM STAGE-I - Umiam Stage II	Completed	Completed	Not Completed	Fiber Network Not Available
19	NEHU - NEIGHRIMS	Completed	Completed	Not Completed	Awaiting for Commissioning of fiber under NERFO
20	NEHU - MAWLAI	Completed	Completed	Completed	
21	KHLIEHRIAT (MePTCL)-KHLIEHRIAT(PG) line-II	Completed	Completed	Completed	
22	Stage-III - Stage IV Line I	Completed	Completed	Not Completed	Fiber Network Not Available
23	Stage-III - Stage IV Line II	Completed	Completed	Not Completed	