

Agenda for 68th PCCM



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

North Eastern Regional Power Committee

Agenda for

68th Protection Coordination Sub-Committee Meeting

Date: 13/06/2024 (Thursday)

Time: 11:30 hrs.

Venue: NERPC conference Hall, Shillong

A. C O N F I R M A T I O N O F M I N U T E S

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 may confirm 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
			Audit report to be shared with RPC
			Action plan for rectification of deficiencies to be shared with RPC
	Third party Audit	All users (132kV and above)	Shall conduct audit for each SS
			Shall conduct audit on advice of RPC
			Audit report* to be submitted to RPC and NERLDC/SLDC
			Action plan for rectification of deficiencies
		RPC	Compliance to audit reports to be followed up regularly
		RPC	After analysis of any event, shall identify substations where audit is required to be carried out
	Annual audit plan	All users	Annual audit plan to be submitted to RPC by 31st October

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 PCCM.
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.

Sub-committee may deliberate

B.2 Urgent requirement of Third-Party Protection Audit of substations of MePTCL

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.

Sub-committee may deliberate

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.

Sub-committee may deliberate

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 (**Annexure B.4**) prepared by NERLDC.

Sub-committee may deliberate

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

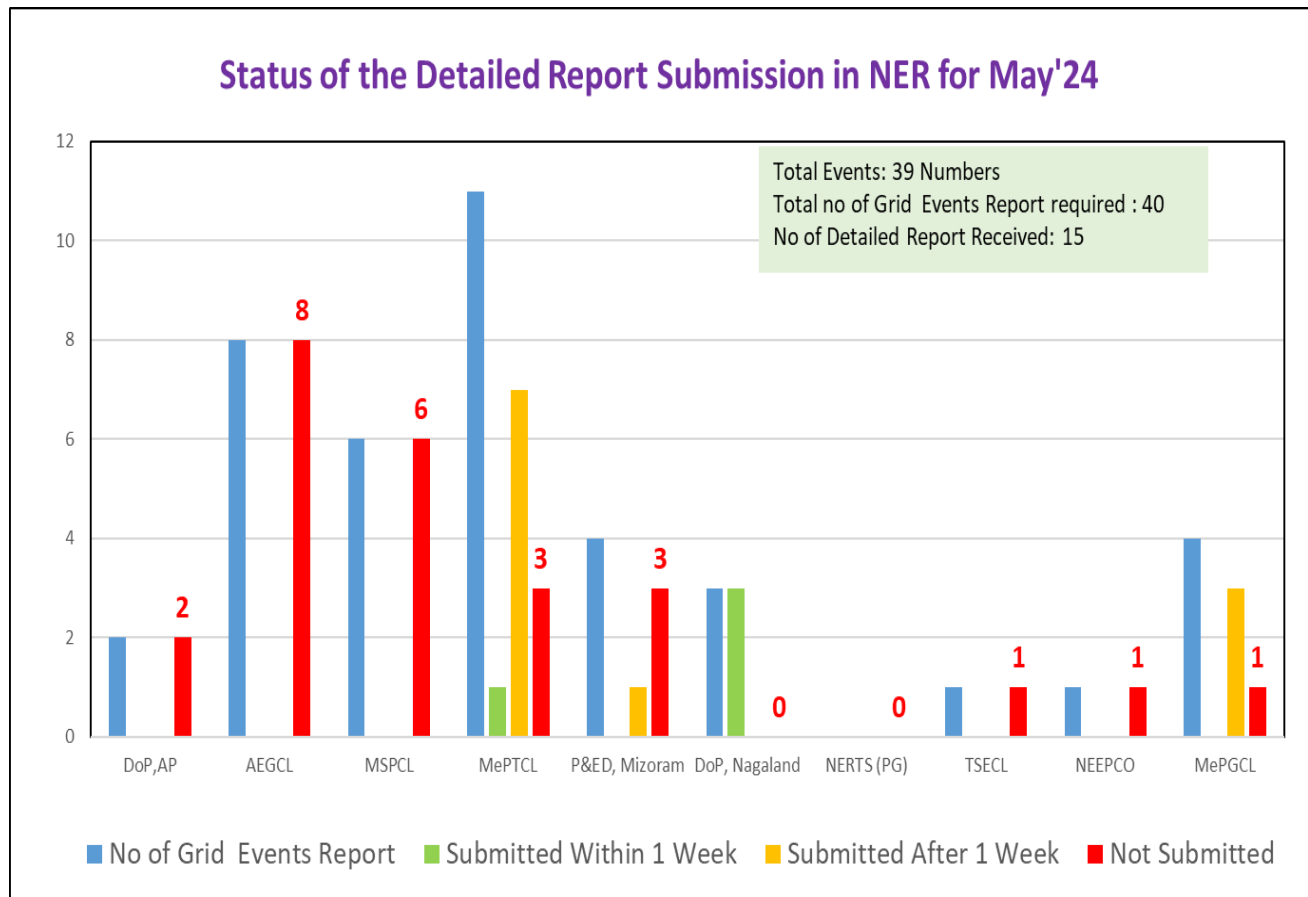
Concerned Utilities are requested to upload Disturbance Recorder (DR), Event Logger (EL) outputs for grid events along with a First Information Report (FIR) in Tripping Monitoring Portal (<https://tripping.nerlhc.in/Default.aspx>) for analysis purpose. In light of the cybersecurity measures implemented by Grid India to safeguard sensitive information, NERLDC has created the email address nerlhcso3@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 nerlhcprotection@grid-india.in.

Sub-committee may deliberate

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.

Sub-committee may deliberate

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

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	Hailakan di	

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
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	
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	
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	
5	132 kV Haflong - Jiribam Line	05-05-2024 12:05	DP, R-E, Z1,13.64KM, AR Unuccessful	M1: RN,Z1,63.5 KM,1.13KA , AFAS DOUBLE ENDED:73 .35 KM KM	Jiribam: Not Operated (as per DR)	
6	132 kV Badarpur - Karimganj Line	05-05-2024 13:48	DP,ZII,Y-E,FD:27.2 5KM, Carrier Aided	DP,ZI, Y-E,FD: 0.2km	Karimganj	

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
			tripping & AR Operated Sucessfully			
7	132 kV Aizawl - Tipaimukh Line	05-05-2024 15:00	DP,ZI,R-E,FD:71.19KM	DP,ZI,R-E,FD:11.6 km, AR Operated as per FIR	Aizawl	
8	132 kV Aizawl - Tipaimukh Line	05-05-2024 21:54	DP,ZI,B-E,FD:72.73KM	Details awaited	Aizawl	
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	
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	
11	132 kV Nirjuli-North Lakhimpur 1 Line	07-05-2024 12:34	DP,ZI,YB,F D: 7.5km, Iy 2.56kA, Ib 2.51kA	DP,ZI,YB,F D:26.7km, Iy 1.0kA, Ib 1.03kA	Both ends	
12	400 kV Azara - Bongaigaon Line	18-05-2024 06:49	DP,ZII,B-E,FD: 151.3km,C	BG, 9.9kA, 2.294, Z1	Not Operated at Azara	

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
			Carrier Aided Tripping		(Spring not charged alarm high)	
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	

Utility may update

B.8 Submission of Protection Performance Indices by Transmission Utilities:

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 $D = N_c / (N_c + N_f)$
- The Security Index defined as $S = N_c / (N_c + N_u)$
- The Reliability Index defined as $R = N_c / (N_c + N_i)$

Where,

N_c: number of correct operations at internal power system faults

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

N_u: Number of unwanted operations.

N_i: Number of incorrect operations and is the sum of N_f and N_u

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

S N	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

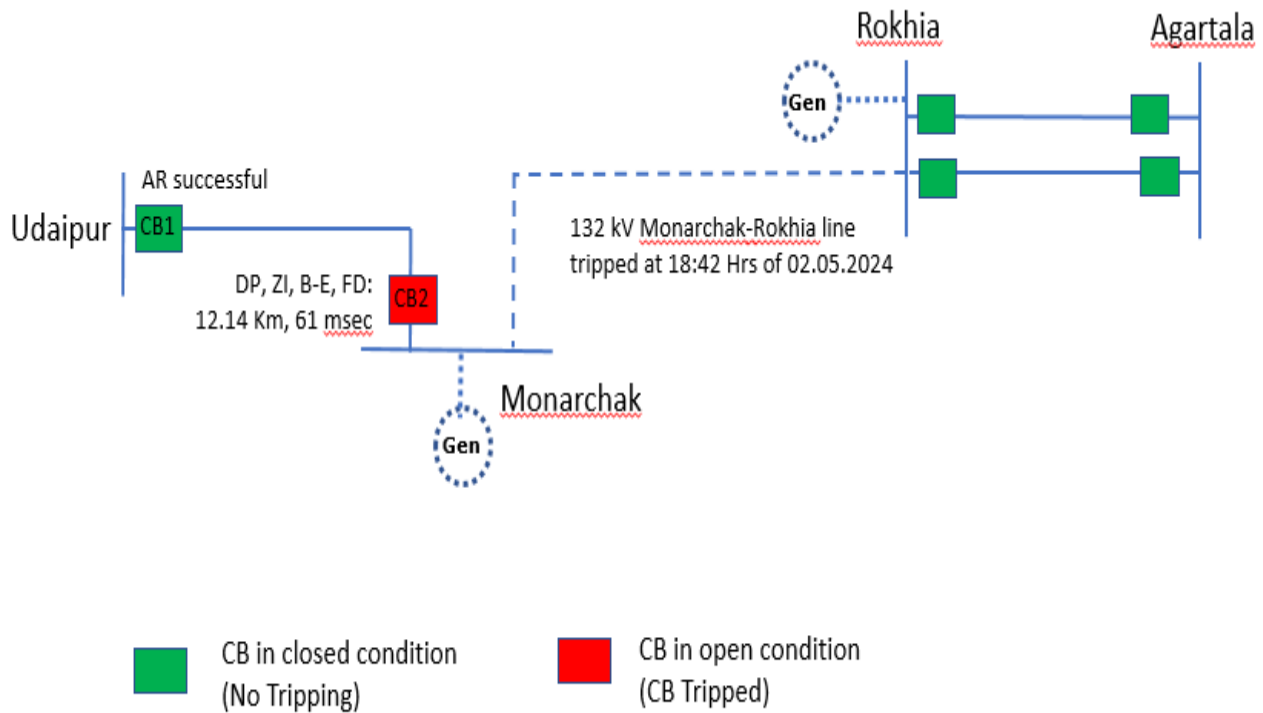
It has been observed that Protection Performance Indices are not being submitted by all the users. Therefore, all Users are requested to furnish performance indices (Dependability-D, Security-S, Reliability-R) with regards to the tripping of elements to NERPC & NERLDC positively **by 10th of every month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

Sub-committee may deliberate

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:

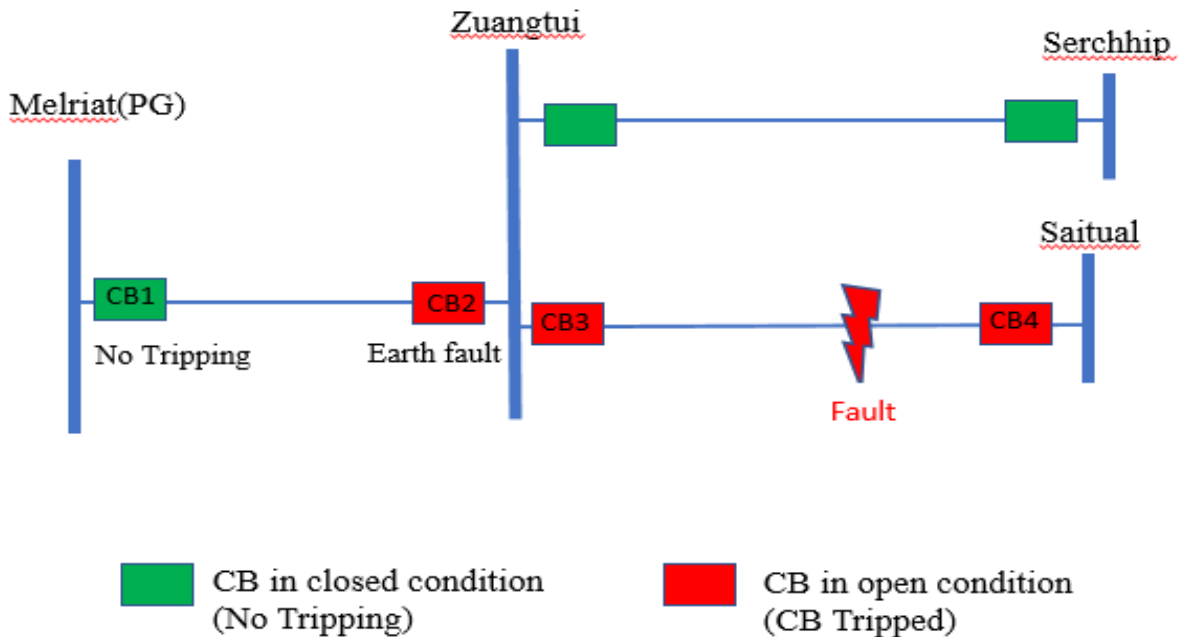
- Huge DR time drift of 10 min at Monarchak and 8 min at Udaipur. Needs to be rectified by NEEPCO and TPTL.
- DR time duration is insufficient at Udaipur. It should be extended to 3 seconds, with a pre-fault time of 500 milliseconds and a post-fault time of 2.5 seconds.
- Flash Report and Detailed report not submitted by NEEPCO & TSECL which is violation of IEGC Section 37.2 (b) & (e).

TSECL/TPTL is requested to share the root cause and remedial measures taken.

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.

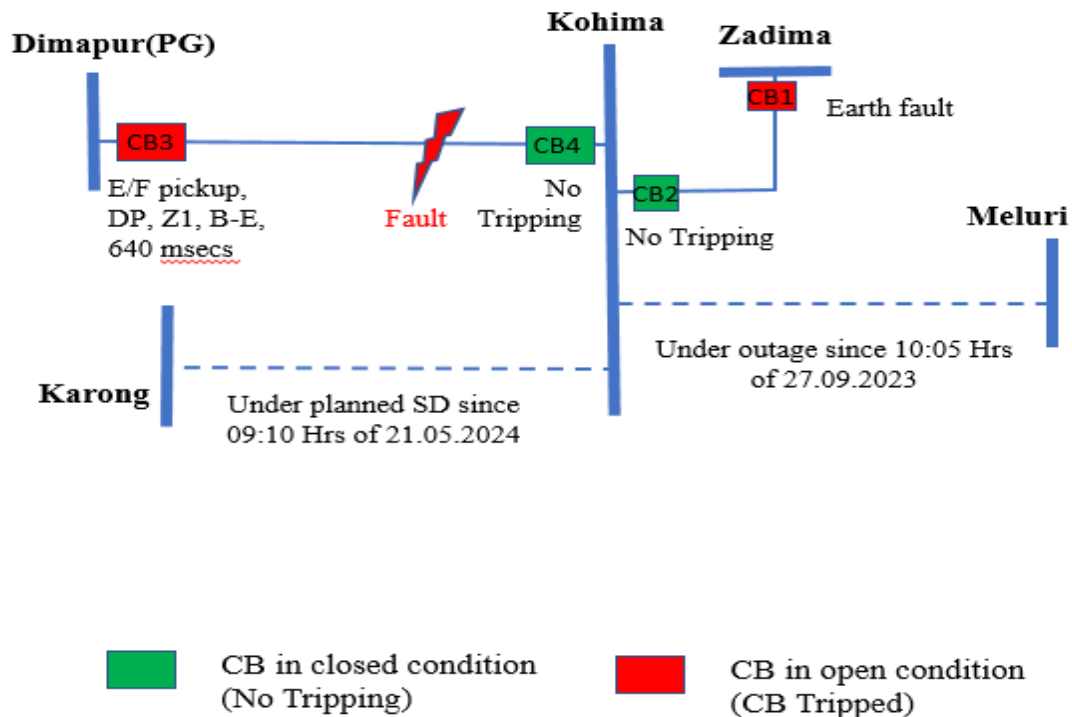
P&ED Mizoram is requested to –

- 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.

Sub-committee may deliberate

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.

Sub-committee may deliberate

B.12 Frequent Grid disturbances in Myntdu Leshka HEP of Meghalaya Power System:

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.

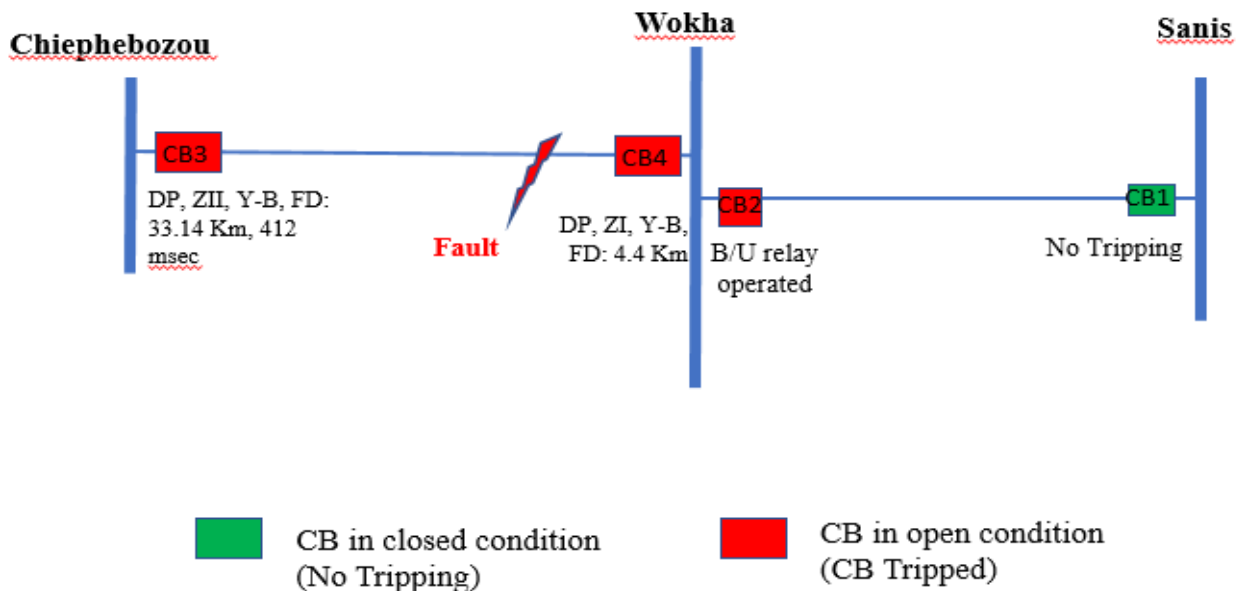
4. MePGCL is requested to ensure that patrolling related activities are undertaken as per CEA (Grid Standard) Regulation, 2010 on regular basis and measures may be identified and implemented at the earliest so as minimize tripping of these lines.

MePGCL/MePTCL may update.

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-Chiephebozou 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.

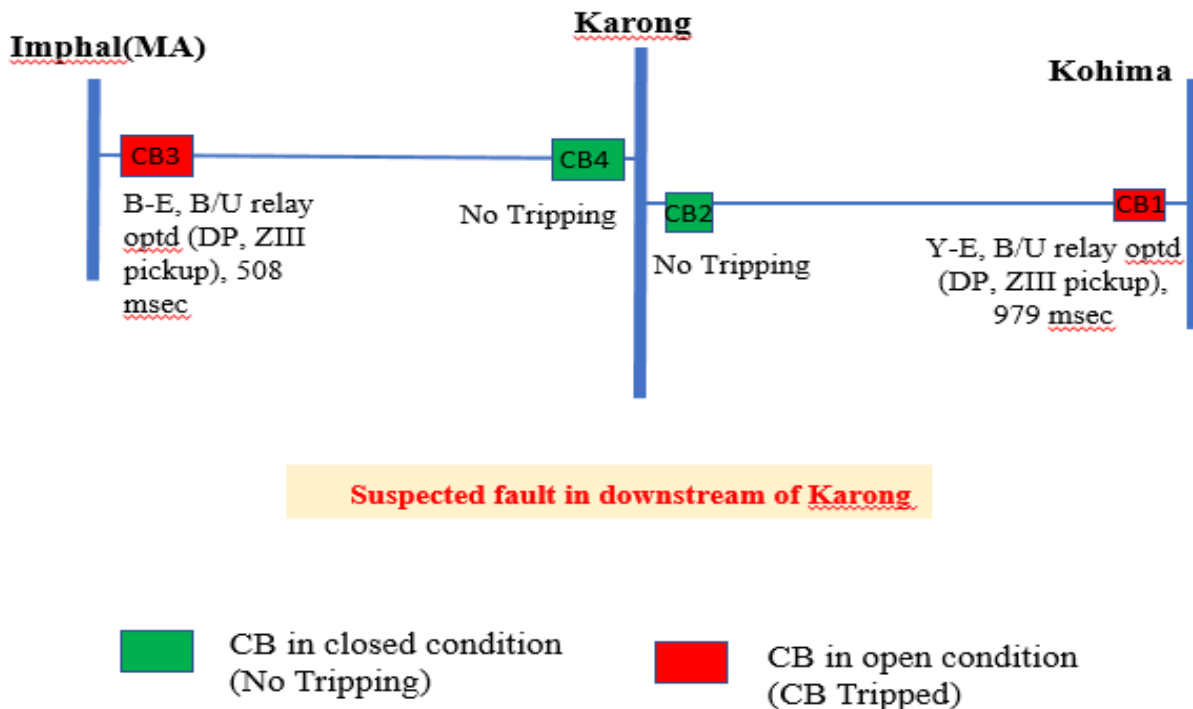
Same type of event occurred at 20:26 Hrs of 26.05.2024.

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

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.

MSPCL may update the root cause and remedial measures taken.

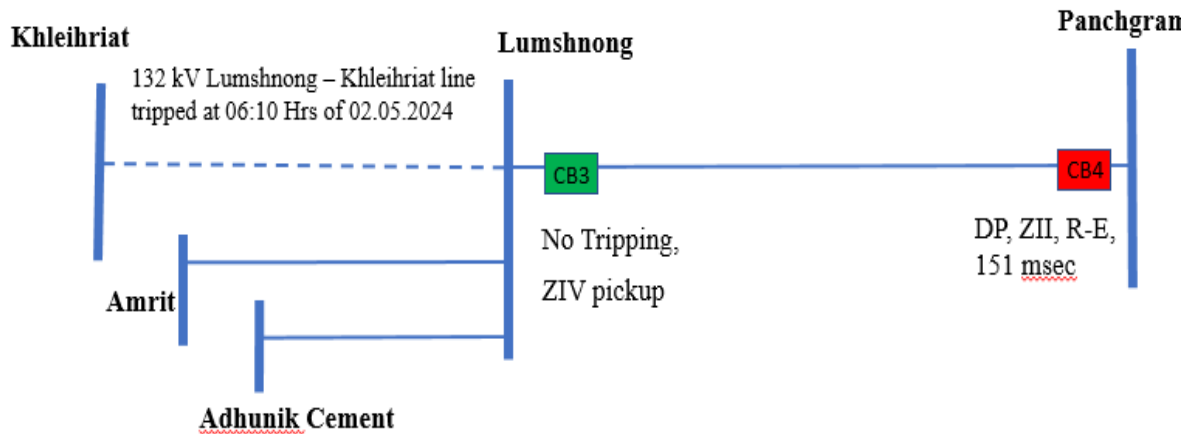
B.15 Grid Disturbance in Lumshnong area of Meghalaya on 30-05-2024:

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-Khliehriat 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

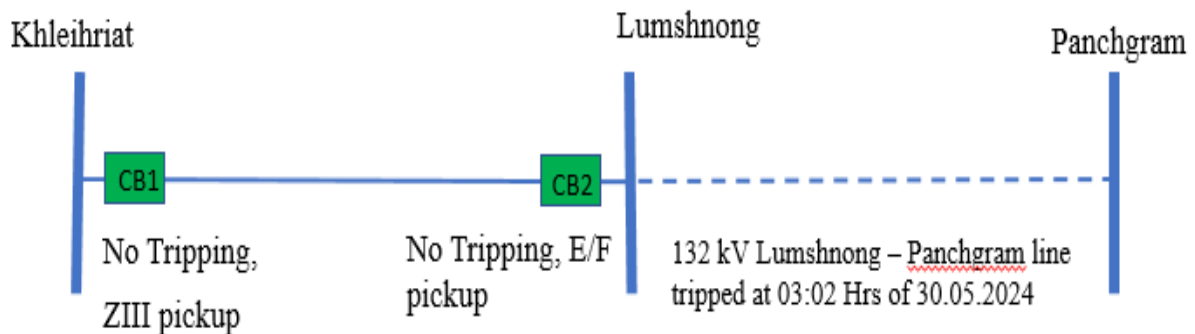
As per DR analysis, R-E fault (Ir-1.8 kA, In-1.4 kA) initiated at 07:00:11.821 Hrs in 132 kV Lumshnong-Panchgram line cleared within 151 msec on operation of DP, ZII from Panchgram end only. ZIV start at Lumshnong end which inferred that fault is in reverse direction.

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-Khleihriat 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 Khliehriat 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.

Sub-committee may deliberate

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.

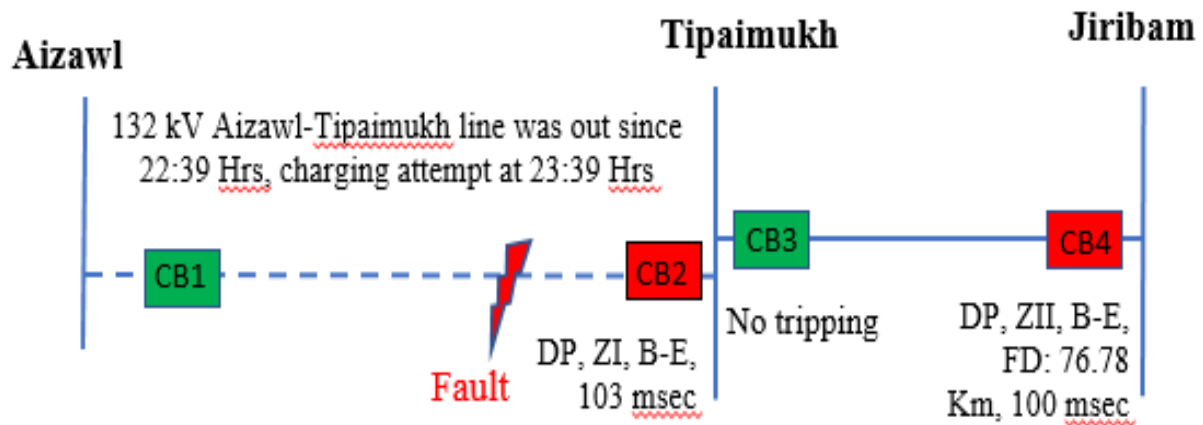
Sl. No.		Trip time (hh:mm:ss)	Restoration time	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत
1	220 kV Mawngap-Killing I Line	15:17	17:19	DP, ZI, R-Y-B-E	DP, ZII, R-Y-B-E, FD: 96.87 Km, Carrier Aided Trip and DT Received

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.

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 Aizawl-Tipaimukh line.

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

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.

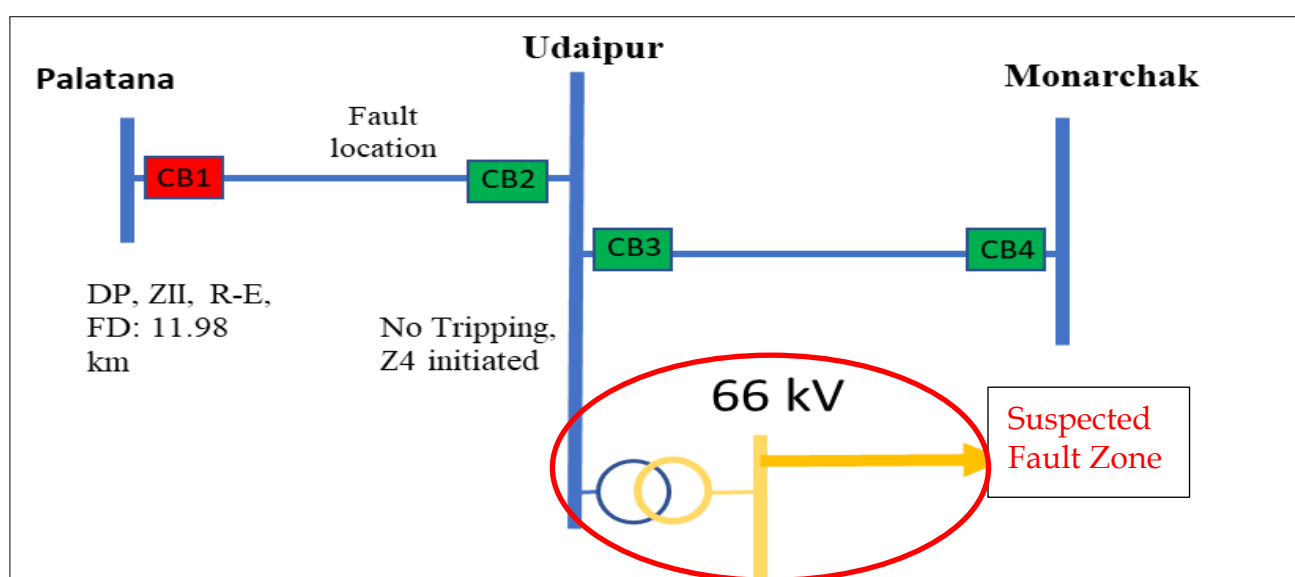
DoP Nagaland stated that work progress for the months of March'24 and April'24 have been submitted to NERPC.

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

Concerned States may update

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.

TSECL may update

C.3 Frequent Grid disturbances in Myntdu 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.

Meghalaya may update

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 msec 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.

Assam may update

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 67th PCCM

Sl. No.	SPS under operation	Long term measures	SPS mapping status in SCADA (YES/No)
1	<p><u>Tripping of 400kV Palatana-Silchar D/C-</u></p> <p>when both modules of Palatana are in service causes tripping of HV side breaker of 2x125 MVA, 400/132 kV ICT at Palatana</p>	<p>After commissioning of 400 kV Palatana - Surajmaninagar line-1, there is no requirement of this SPS and hence, it is to be kept OFF.</p> <p>However, the SPS at Palatana is to be kept ON during shut down of 400 kV Palatana-Surajmaninagar (ISTS) line-1</p>	OTPC to do next week
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)	<p>After upgradation of 220 kV BTPS-Salakati D/C lines.</p> <p>(Need to disable after system study of the present condition)</p>	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	<u>Related to the safe evacuation of power from BgTPP(NTPC) generation</u> - BGTPP generation reduction to 600 MW	-	Done
6	<u>Related to Generation evacuation from Monarchak(NEEPCO) Power Plant</u> - 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- 1 month
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	<u>Related to the tripping of Bus Reactors at 400 kV S M Nagar (ISTS)</u> - 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	-	NTL assured to do by 15 th May'24. (absent in the meeting)
9	<u>Related to the tripping of Bus Reactors at 400 kV P K Bari (ISTS)</u> - 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	-	NTL assured to do by 15 th May'24. (absent in the meeting)
10	<u>Related to the tripping of Bus Reactors at 400 kV Imphal (PG)</u> - Tripping of 400 kV New Kohima – Imphal D/C during outage of 400 kV Silchar – Imphal D/C will lead to the	-	NERTS assured to do within 1 month

	tripping of 125 MVAR and 80 MVAR Bus Reactor at Imphal(PG)		
11	<u>Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station -</u> 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
12	<u>SPS related to outage of 220 kV Azara-Sarusajai DC/220 kV Misa-Samaguri DC -</u> 1) On tripping of 220 kV Azara-Sarusajai D/C: 140-150 MW load disconnection is to be done at Sarusajai and Kahilipara areas 2) On tripping of 220 kV Misa-Samaguri DC: Load reduction of 50-60 MW at Samaguri area	Commissioning of 400 kV Sonapur Substation. LILO of 400 kV Bongaigaon-Byrnihat Line at Sonapur.	2 months
13	<u>SPS related to the outage of 132 kV Panyor HEP-Ziro Line -</u> 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	2 months

16	<u>Related to Outage of 400 kV Palatana – Surajmani Nagar line (charged at 132 kV)</u> - 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	<u>Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana</u> - 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 3 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.

Utilities may update

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.

AEGCL may update

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 67th PCCM

Sl No	Element Name	Time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility (67 th 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	Issue in Main II relay at Tinsukia end. Can't configure the AR in Main II. Also, to enable AR in Main I, Zone I in Main II has to be disabled which is not feasible. Forum requested to replace the Main II relay

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	Panel retrofiting at Mariani under PSDF. Siemens visiting in 2 months. AR will be enabled accordingly.

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 spring charging motor issue at Along SS, to be rectified by this week.

SL No	Element Name	Tripping Date and Time	Relay Details_A	Relay Details_B	AR not Operated	Remarks from utility (67 th 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	AR configuration not yet done. Shutdown required. To be done by next PCCM.
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 in 1 st week of June'24 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 67 th PCCM
7	220 kV BALIPARA - SONABIL 2	POWERGRID & AEGCL	04-03-2024 13:06	04-03-2024 15:13	02:07:00	Sonabil	DT logic modified in compliance with NER protection Philosophy. Further, AEGCL informed the forum that end-to-end testing with AR testing shall be carried out in next opportunity outage.
8	132 kV Hailakandi - Silchar 2	23-03-2024 21:13	23-03-2024 22:00	DP, ZI, Y-E, FD: 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

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 highest pickup. Master trip actuated. Replacement within 1 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	
12	132 kV Dimapur - Doyang 2	29-03- 2024 13:10	29-03-2024 13:31	DP, ZI, R-Y, FD: 72.6km	DP, ZI, 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: 70.65K m(Carri er Aided Tripping)	DP, ZI, B-E, FD: 14.4 Km	Both Ends	
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	AR failed due to DT receipt at Silchar end

Utilities may further update

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.

TSECL may update

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 67th PCCM

Sl. No	Line	Utility	Update
1	132 kV Dimapur-Kohima	DoP Nagaland	DPR is complete except for budgetary offer which will be Hitachi energies during their visit by end of May'24.
2	132 kV Nirhuli-Lekhi	DoP Ar. Pradesh	DoP Aruanchal Prdaesh stated that WT and CVT are available. NERTS updated that PLCC panel has been installed and work to be completed in next shutdown.
3	132 kV Melriat-Zemabawk	Mizoram	NERTS updated that PLCC is available, Mizoram stated that CVT is available and for WT, order will be placed in June'24
4	400 kV Mariani-Kohima ckt 2		KMTL stated that there is alarm issue in the PLCC panel. Forum exhorted KMTL to resolve the issue, in coordination with the OEM, by next week.
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.

Utilities may update

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 67th PCCM

Sl no	State	Important Transmission lines where AR has to be enabled at the earliest	Status (66 th /65 th PCCM)	status as per 67 th 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 June'24

			gradually, to be completed by June'24.	
3.	Manipur	132kV Imphal-Ningthoungkong	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.	June'24

Utilities may further update

D.2. Installation of line differential protection for short lines:

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 (66th/65th PCCM)	status as per 67th 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 June'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. DoP Nagaland to coordinate with NEEPCO in this regard.
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.	
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Utilities may further update

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

Status as updated in the 67th PCCM:

Sl No	Details of the events(outage)	Remedial action suggested	Name of the utility & previous update	status as per 67th 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 25 th and 26 th 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 to be replaced by NERTS by this month (May'24).
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	SPS to be implemented	MePGCL to implement the SPS by May'24	

	132kV Leshka-Khliehriat DC line			
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
