



सत्यमेव जयते

Agenda for 72nd PCCM



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

North Eastern Regional Power Committee

Agenda for
72nd Protection Coordination Sub-Committee Meeting

Date: 21/10/2024 (Monday)

Time: 11:00 hrs.

Venue: NERLDC conference Hall, Guwahati

A. CONFIRMATION OF MINUTES

1. CONFIRMATION OF MINUTES OF THE 71st PROTECTION SUB-COMMITTEE MEETING OF NERPC.

Minutes of the 71st PCC Meeting held on 11th September, 2024 (Thursday) at NERPC Conference Hall, Shillong was circulated vide letter No.: NERPC/SE (O)/PCC/2024/2403-2444 dated 1st October, 2024.

No comments were received from constituents

The Sub-committee may confirm the minutes of 71st PCCM.

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
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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 70th and 69th 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.
2. AEGCL updated that the internal audit of 61 substations has been completed and would share the report by this month.
3. TSECL absent

4. Manipur informed that Protection audit committee has been formed and the audit schedule, for external audit, will be decided shortly.
5. DoP Arunachal Pradesh updated that internal audit of Chimpu SS is done and report will be shared shortly to NERPC and NERLDC. He further informed that audit of Lekhi would be done by August'24. He also stated that the audit reports would be shared in due time to NERPC.
6. NTPC informed that 3rd party audit has been awarded and will be done in 3rd week of September.
7. NERTS updated that internal audit of its substations is being done in a phased manner and audit of 10 substations has been completed and reports shared with NERPC.
8. DoP Nagaland updated that internal audit of 4 substations has been completed and report shared with NERPC.
9. NEEPCO informed that internal audit of Pare and Kopili has been completed and audit of thermal substations will be done shortly.

Regarding audit of substations of Nagaland and adjoining substations of NERTS, it was decided to conduct the audit of 132 kV Dimapur (DoPN) SS, 132 kV Kohima SS, 132 kV Chiepouvozou SS, 132 kV Zhadima SS and 220 kV Dimapur (PGCIL) in August'24. DoP Nagaland stated that the audit schedule will be provided shortly. Further, it has been decided that audit of rest of the 132 kV substations of Nagaland will be conducted after end of Monsoon season.

The status of internal audit, external audit and report submissions have been summarized in the following table (as update in 71st PCCM) –

	Utility/Constituents	Internal Audit		External audit	
		Status	report	status	report
1.	Ar. Pradesh	Chimpu – done. Rest to be done	Report of Chimpu to be submitted soon	Chimpu and Pashighat planned in February'25. Rest may be conducted in Novemeber'24.	NA

2.	Assam	Done for 61 SS	To be submitted by Aug end	NERPC conducted audit of 6 SS in Jan to June'24. Other SS done in 2021-22. Only Karimganj left.	submitted
3.	Manipur	Done for all SS	Submitted	Schedule to be decided shortly.	NA
4.	Meghalaya	No audit done yet in FY 2024-25	NA	Audit of 6 SS (Killing, EPIP I, EPIP II, NEHU, Mawlai and MAwphlang) conducted by NERPC on 26 th and 27 th August'24	Report to be shared by end of October'24
5.	Mizoram	Done for all SS	Report shared	Audit of Luangmual, Zuangtui and Kolasib planned in August'24. List of external agencies awaited	NA
6.	Nagaland	Done for four SS	Report shared	Audit of 5 ss to be done by NERPC in August. For rest, to be planned	Nov'24
7.	Tripura	11 done, rest by September	To be shared	To be planned After Durga Puja	NA
8.	Powergrid(NERTS)	Done for 10 SS. Others to be done in	shared		

		phased manner			
9.	NTL				
10	KMTL				
11	MUML	Planned in Dec'24 for N.Lakhimpur-Pare line bays and N.Lakhimpur-Nirjuli bays at Lakhimpur	To be shared		
12	NEEPCO	Pare, Ranganadi and Turial done. RC Nagar and Kathalguri to be planned	Shared for Pare and Turial	To be planned. Waiting for the list of agencies from NPC	
13.	OTPC	Done		Done	shared
14.	NTPC	Done	shared	September 3 rd week	
15.	NHPC				
16.	APGCL				
17.	TPGCL				
18.	MEPGCL				

Following points were discussed in the 71st PCC meeting

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. Forum requested users to update the next year Internal Audit & Third-party Audit plan and also requested to send the last 5-years Internal Audit & Third-party Audit list to NERPC and NERLDC as soon as possible.

3. AEGCL updated that the internal audit of 61 substations has been completed and report has been submitted. AEGCL also updated that for Third-party Audit of 132 kV Karimganj substation is yet to be done.
4. TSECL updated that the internal audit of 11 substations has been completed and rest would be completed by Sept.'24 and would share the report at earliest. He also informed the forum that Third-party Audit would be planned after Oct'24.
5. Manipur informed that Protection audit committee had been formed and the audit schedule, for external audit, would be decided shortly.
6. DoP Arunachal Pradesh updated that the external audit is planned to be conducted in Nov'24.
7. Mizoram informed the forum that they were planning Third-party Audit through recognized auditor and for the same they were waiting for the CEA recognized auditor list.
8. NTPC informed that 3rd party audit had been awarded and would be done in 3rd week of September.
9. DoP Nagaland informed the forum that due to landslide issue, external audit of 5 substations would not be possible then and requested that external audit of the same could be done tentatively in Nov'24.

MS, NERPC stated that the audit of Kolasib (Mizoram), Aizwal (PG), Melriat (PG) and other nearby important substations would be conducted by October'24.

Sub-committee may deliberate

B.2 Analysis and Discussion on Grid Disturbances which occurred in NER grid in September'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 September 2024 based on the draft report prepared by NERLDC (**annexure B.4**).

Sub-committee may deliberate

Agenda from NERLDC

B.3 Status of submission of FIR, DR & EL outputs for the Grid Events for the month of September'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 01-09-2024 to 30-09-2024 as on **08-10-2024** is given below:

Name of Utility	No. of trippings	Total FIR to be submitted	Total DR to be submitted	Total EL to be submitted	Total FIR, DR & EL submitted			Total FIR, DR & EL not submitted			% Submission of		
					FIR	DR	EL	FIR	DR	EL	FIR	DR	EL
DoP, Arunachal Pradesh	17	25	18	24	24	16	21	1	2	3	96	89	88
DEPL	0	0	0	0	0	0	0	0	0	0	No event		
AEGCL	34	79	58	56	78	57	55	1	1	1	99	98	98
APGCL	0	0	0	0	0	0	0	0	0	0	No event		
MSPCL	10	15	15	15	10	8	8	5	7	7	67	53	53
MePTCL	43	54	54	50	52	54	50	2	0	0	96	100	100
MePGCL	9	19	9	14	8	3	3	11	6	11	42	33	21
P&ED, Mizoram	0	0	0	0	0	0	0	0	0	0	No event		
DoP, Nagaland	8	13	13	13	13	13	13	0	0	0	100	100	100
TSECL	10	17	17	17	14	16	16	3	1	1	82	94	94
TPGCL	2	2	2	2	0	0	0	2	2	2	0	0	0
POWERGRID	42	72	68	68	70	65	65	2	3	3	97	96	96
NEEPCO	21	47	41	43	38	38	37	9	3	6	81	93	86
NHPC	16	18	16	16	8	8	8	10	8	8	44	50	50
NTPC	0	0	0	0	0	0	0	0	0	0	No event		
OTPC	3	3	3	3	3	3	3	0	0	0	100	100	100
NTL	6	12	12	12	12	12	12	0	0	0	100	100	100
MUML	3	2	2	2	2	2	2	0	0	0	100	100	100
KMTL	0	0	0	0	0	0	0	0	0	0	No event		

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.

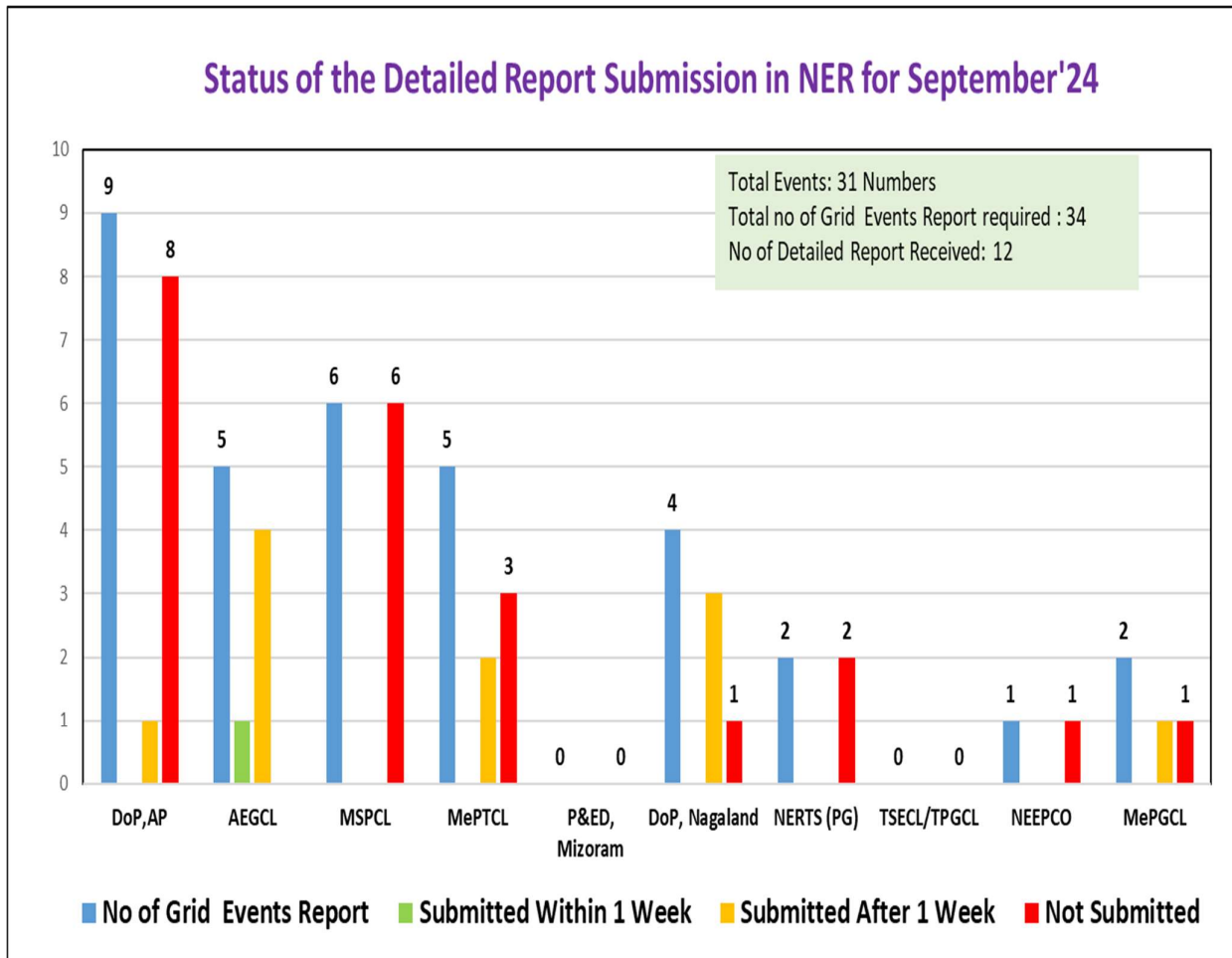
Also, all utilities are requested to nominate a nodal officer responsible for the submission of FIR, DR & EL in Tripping Monitoring Portal (<https://tripping.nerldc.in/Default.aspx>)

Members may discuss.

B.4 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 **September, 2024** as on **09-10-2024** 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.

Members may discuss

B.5 Non-operation of auto recloser in Important Grid Elements for transient faults in September 2024:

Sl. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
1	132 kV Silchar-Melriat I Line	02-09-2024 16:19	R-N, Differential trip, AR successful	DP, R-N	Melriat	
2	400 kV Byrnihat-Silchar Line	02-09-2024 16:53	DP, ZII, Y-N	DP, ZI, B-N, Carrier send	Both ends	
3	220 kV Mariani-Samaguri Line	13-09-2024 12:17	DP, ZI, B-N, AR successful	DP, ZII, B-N, Carrier aided trip	Samaguri	
4	132 kV AGTCCPP-Kumarghat Line	14-09-2024 11:13	DP, ZI, Y-B, AR not attempted	DP, ZI, Y-B, AR unsuccessful	AGTCCPP	
5	220 kV Amguri-NTPS Line	27-09-2024 11:50	DP, ZI, B-N	DP, ZII, B-N	Both ends	

Utility may update

B.6 Submission of Protection Performance Indices by Transmission Utilities:

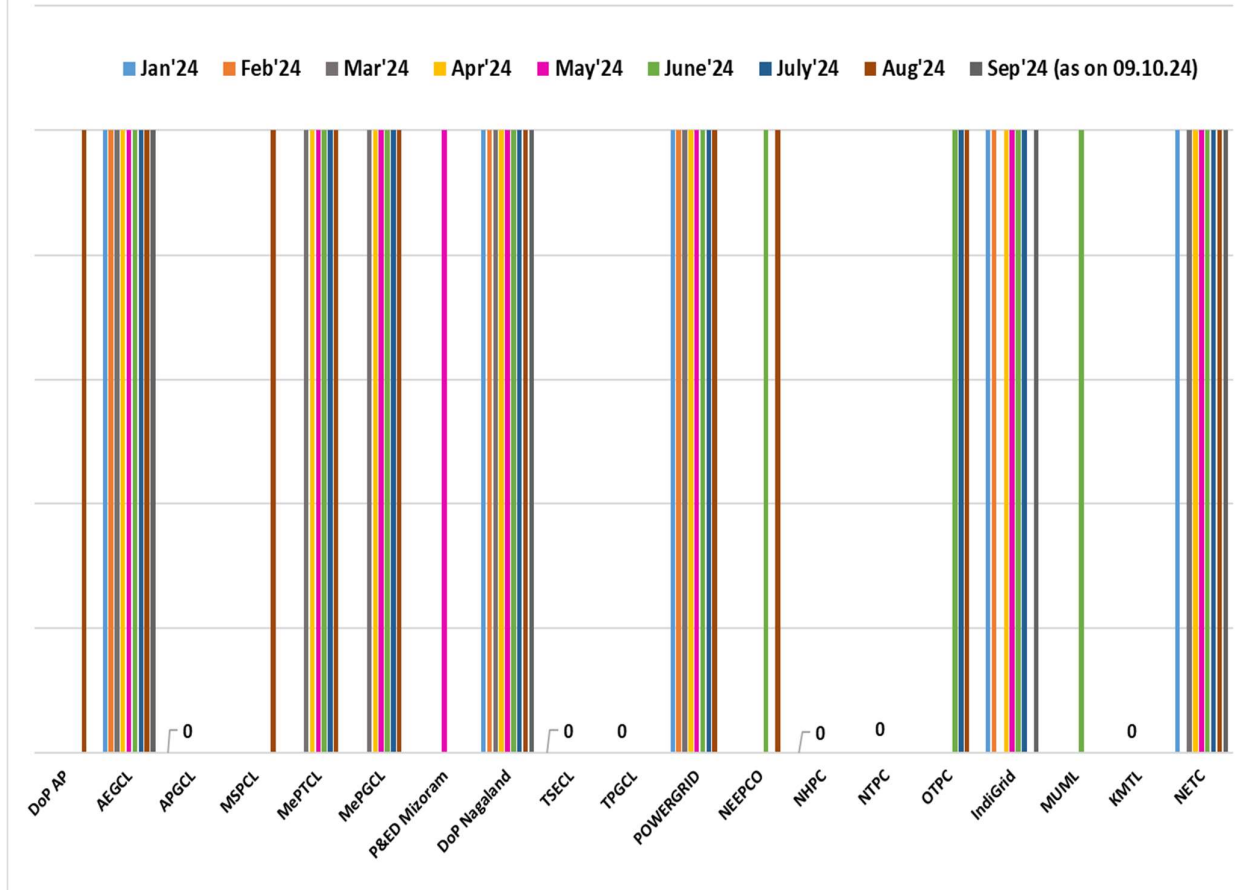
As per Regulation No. 15(6), Protection Code - Users shall submit the following protection performance indices of previous month to their respective RPC and RLDC on monthly basis for 220 kV and above (132 kV and above in NER) system by 10th of every month for previous month indices, which shall be reviewed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

As on 09.10.2024, **NETC, DoP Nagaland, AEGCL** and **NTL** has submitted protection performance indices for the month of September'24.

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	DoP Nagaland	0.941	0.842	0.941	Tripping of 132 kV Sanis-Wokha line
3	AEGCL	0.986	0.947	0.935	<ul style="list-style-type: none"> • 220 kV NTPS-Tinsukia: Unwanted DEF operated at Tinsukia • 132 kV Bokajan-Sarupathar: DEF operated at Sarupathar end • 132 kV Mariani-Jorhat I: Spurious LBB operated at Mariani • 100 MVA ICT-I at Rangia: OSR operated due to moisture ingress inside OSR relay • 220 kV Amguri-NTPS: Pole discrepancy relay malfunctioned at NTPS end
4	NTL	1	0.8	0.8	400/132 kV ICT-I & II at Surajmaninagar: Tripped from LV side

					during closing of isolator 101-89A Y-phase from switchyard, Y-phase 67 relay O/C & E/F operated
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Status of submission of Protection performance indices from January'24 to September'24



It has been observed that **APGCL, TSECL, TPGCL, NHPC, NTPC & KMTL** has not submitted the protection performance indices since Jan'24 which is a violation of **IEGC Clause 15.6**.

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 in compliance with IEGC.

B.7 Grid disturbance in Udaipur area of Tripura on 04-08-2024:

Udaipur area of Tripura Power System was connected with rest of NER Grid through 132 kV Monarchak - Udaipur line. 132 kV Palatana - Udaipur line was under planned shutdown since 09:52 Hrs of 04.08.2024.

At 12:31 Hrs of 04-08-2024, 132 kV Monarchak - Udaipur line tripped due to which grid disturbance occurred in Udaipur area of Tripura. Load loss of 32 MW occurred.

Following observations:

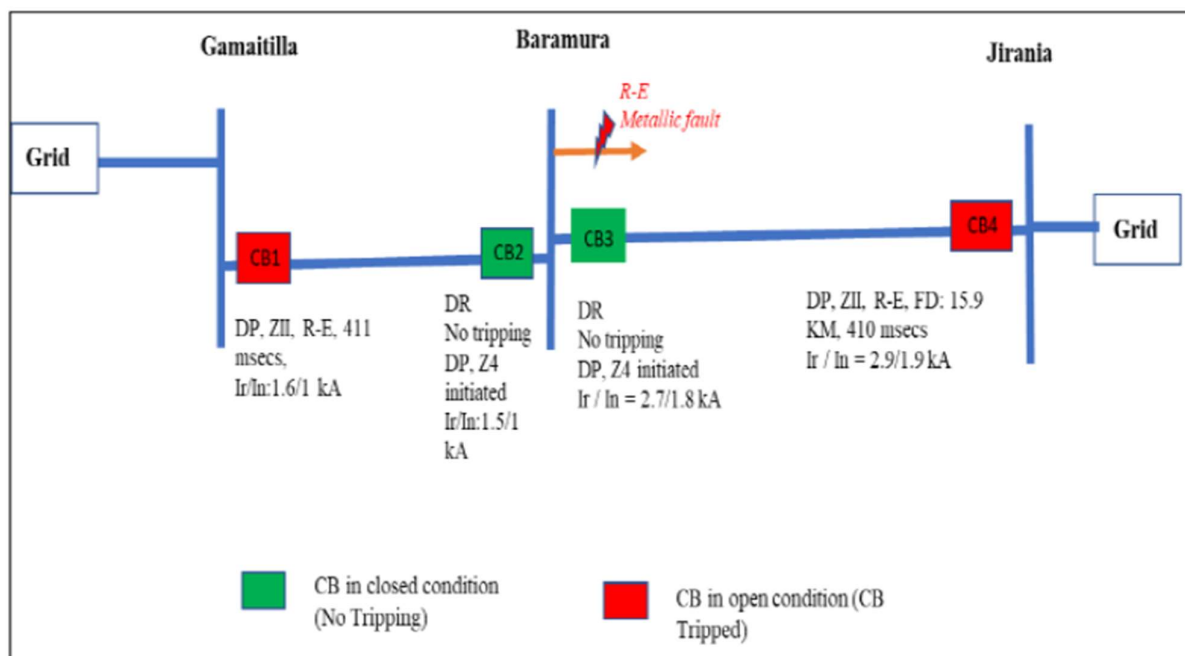
- High resistive B-E fault initiated at 12:29 Hrs & cleared within 1000 msec on operation of DP, ZIII (FD: 47.31 Km). There was no tripping from Udaipur end.
- Fault is suspected in downstream of Udaipur substation as fault distance recorded by distance relay is beyond the line length of 41.5 Km.
- Protection system of downstream feeder at Udaipur failed to isolate the fault.

Similar event occurred at 11:25 Hrs of 26.07.2024 due to downstream fault.

TSECL is requested to update the root cause and remedial measures that has been taken.

B.8 Grid disturbance at Baramura area of Tripura on 14-08-2024:

At 11:20 Hrs of 14-08-2024, 132 kV Baramura-Gamaitilla line and 132 kV Baramura-Jirania line from Gamaitilla & Jirania end on operation of DP, ZII within 411 msec. No tripping observed at Baramura end for both the lines and Z4 initiation in the Digital Channel of DR output indicates that fault is either in Baramura S/S or in downstream feeder of Baramura S/S.



TSECL is requested to:

- Share the exact location of the fault along with root cause and remedial measures taken.
- Reason for non-submission of detailed report for the Grid Event to NERLDC & NERPC in compliance with the IEGC-2023 {section 37.2 (e)}.

Similar event occurred at 23:47 Hrs. of 12.06.2024 and 16:51 Hrs. of 07.07.2024 due to downstream fault.

B.9 Tripping of 400 kV Balipara-Kameng I line on 12-08-2024:

At 12:18 Hrs on 12-08-2024, 400 kV Balipara- Kameng 1 Line tripped. As per DR analysis, high resistive B-E fault with Ib-2.8 kA and In-2.4 kA (gradually increasing fault current) in 400 kV Balipara- Kameng 1 Line cleared from Balipara on Backup E/F within 340 msec and Kameng end within 390 msec on operation of DP, ZI.

Tripping at Balipara end on operation of E/F within 340 msec seems Backup relay coordination issue.

POWERGRID/NEEPCO is requested to:

- Update the root cause of Backup E/F operation within 340 msec and its remedial measures taken.

- Standardize DR digital channel at Kameng. CB status, DT send/received, Carrier sent/received channels to be configured.

B.10 Operation of Single phase Auto recloser during phase-phase fault in 400 kV Silchar-Misa I Line on 18-08-2024:

At 17:37 Hrs on 18-08-2024, 400 kV Silchar-Misa I &II Lines tripped.

DR analysis of 400 kV Silchar-Misa I line:

Misa end: R-Y-E fault cleared within 58 msec from Misa end on operation of DP, ZI. Fault Current Ir: 3.1 kA, Iy: 1 kA & In: 2 kA and Voltage dips to 109 kV & 136 kV in R&Y phases.

Silchar end: Y-B-E fault cleared within 46 msec from Silchar end on operation of DP, ZI. Fault Current Iy: 3.7 kA, Ib: 1.1 kA & In: 4.9 kA and Voltage dips to 63 kV & 99 kV in Y&B phases.

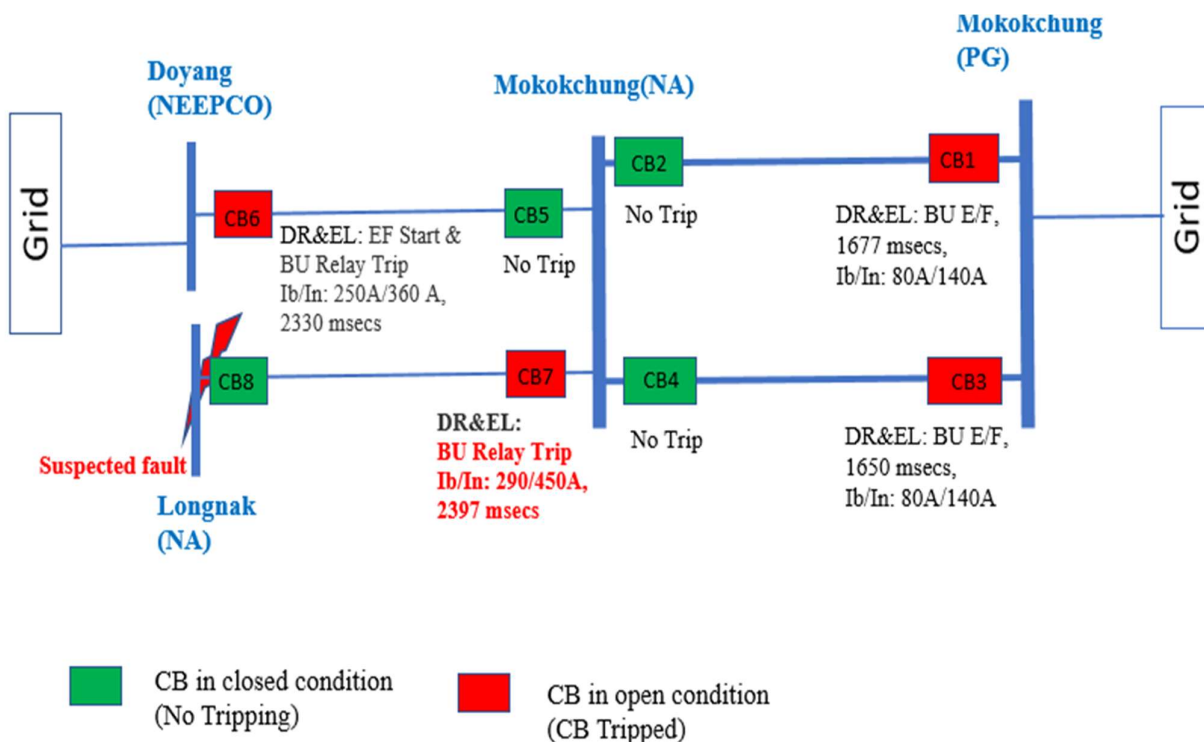
AR operation observed at Silchar end despite of LL-G fault which seems unwanted operation at Silchar.

POWERGRID is requested to furnish the reason of unwanted AR operation at Silchar and review the same to avoid auto reclosing during multi-phase fault.

Sub-committee may deliberate

B.11 Grid Disturbance in Mokokchung(NL) and Longnak areas of Nagaland power system on 07-09-2024:

At 15:43 Hrs of 07-09-2024, 132 kV Mokokchung (PG) - Mokokchung (NL) D/C Lines, 132 kV Doyang - Mokokchung (NL) Line and 132 kV Mokokchung(NL)-Longnak Line tripped due to which grid disturbance occurred in Mokokchung(NL) and Longnak areas of Nagaland.



Analysis based on DR signal:

- Mokokchung(PG): Y-N fault initiated at 15:42:32.784 Hrs. CB opens in 1.67 sec by opening 132 kV Mokokchung(PG)-Mokokchung(NL) 1&2 line on operation of B/U E/F. Fault current of Ib: 80-90A & In: 140A observed in each line.
- Doyang(NEEPCO): CB opens in 2.3 sec on operation of backup relay trip. Fault current of Ib: 200-250A & In: 230A observed.
- Mokokchung(NL): CB opens in 2.3-2.4 seconds on operation of backup E/F. Fault current of Ib: 290A & In: 450A observed.

As per report from DoP Nagaland, insulation failure of 132/33 kV ICT-II in between HV to body at Longnak observed. R-Phase jumper Open at fault distance of 10 Km in 132 kV Mokokchung-Longnak Line and same has rectified at 13:30 hrs on 09.09.2024.

Following observations:

- Protection system of 132/33 kV ICT-II at Longnak failed to isolate fault in ICT which was cleared by operation of Backup Relay at Mokokchung(PG),

Doyang(NEEPCO) & Mokokchung(NL). The same needs to be checked by DoP Nagaland.

2. 132 kV Mokokchung(NL)-Longnak line tripped from Mokokchung(NL) end within 2.4 sec for fault in 132/33 kV Longnak ICT-II. As per existing setting, B/U EF pickup 75A, TMS: 0.20. With this setting the fault should clear from Mokokchung SS (for 132 kV Longnak Line) within 767 msec with neutral current of 450 A. NERLDC has already shared mail on 16th September'24 to DoP Nagaland to carry out the following-

- i) The reason of non-clearance of fault and its corrective measures to prevent repetition. Also, requested to test the relay to ensure the healthiness of the protection system.

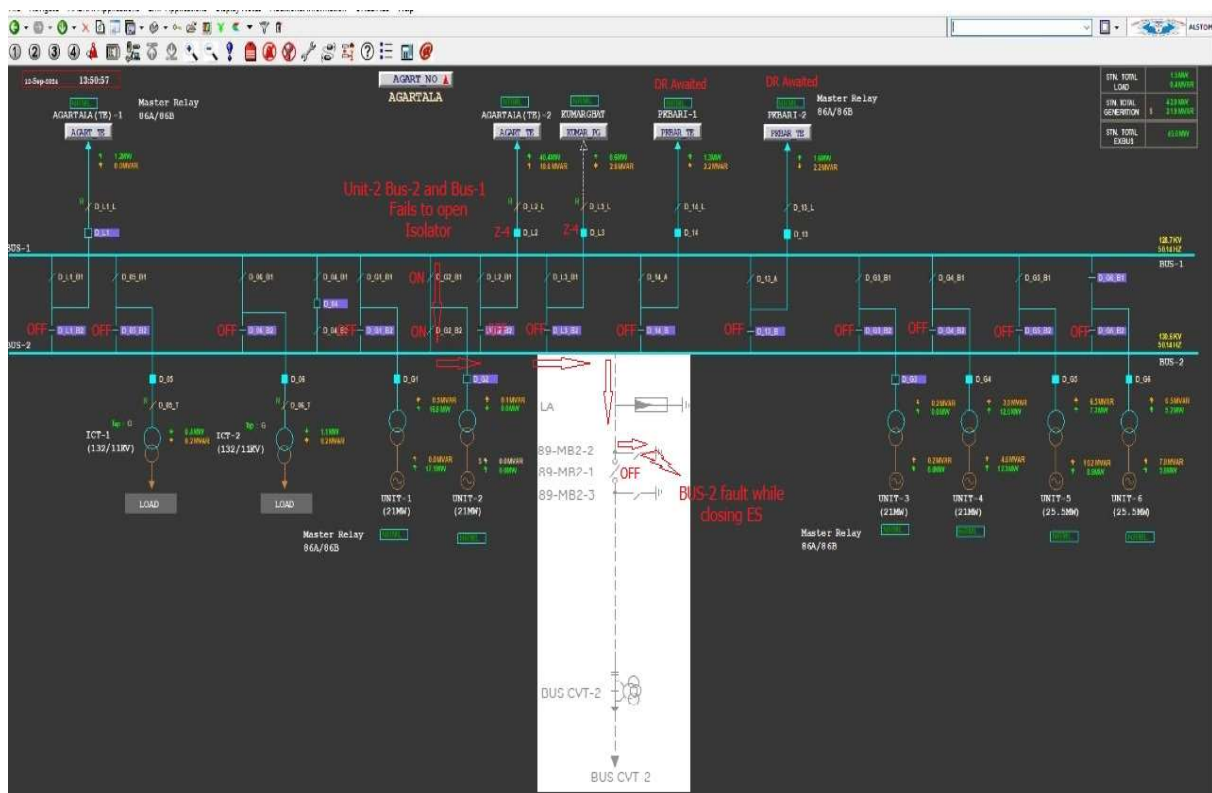
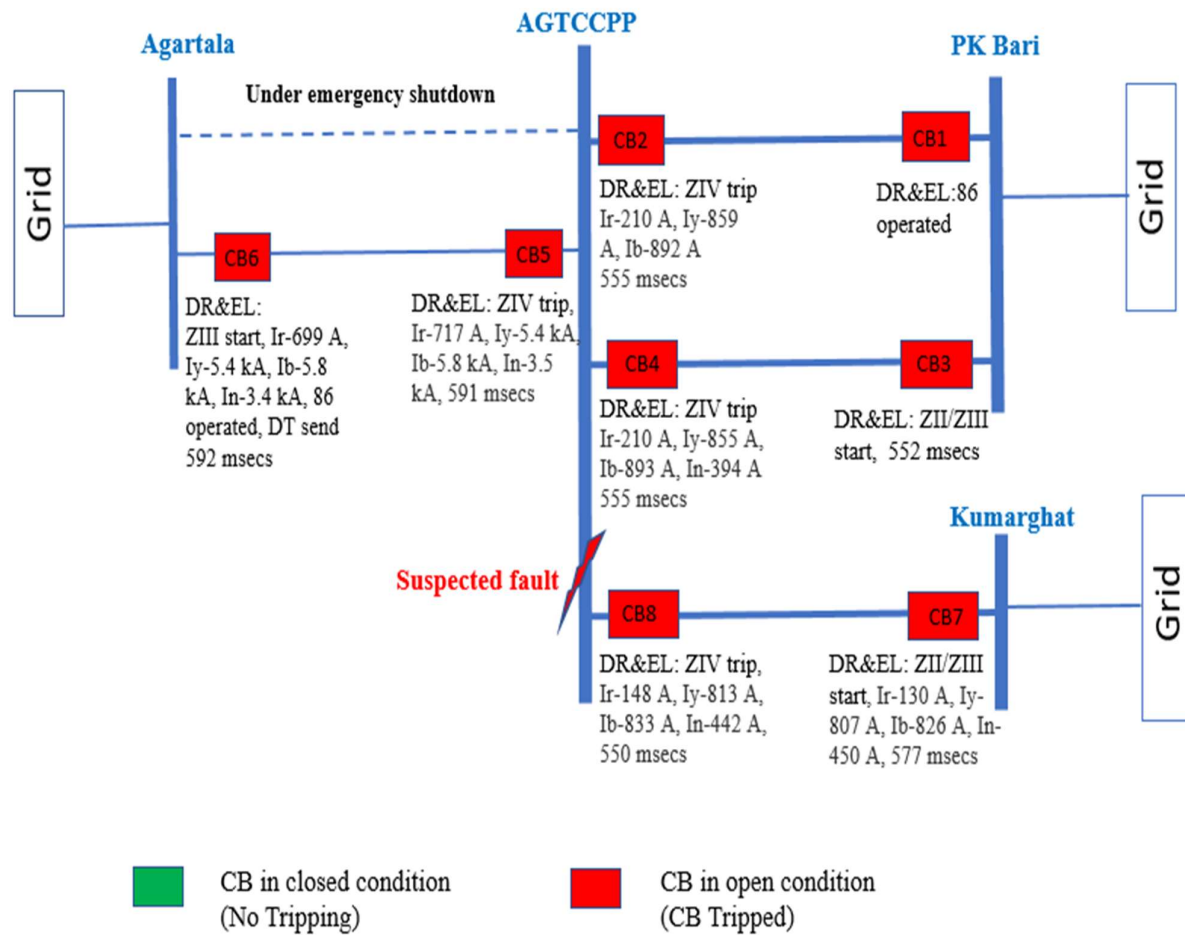
- ii) Non-operation of distance protection at Mokokchung(NL) end for 132 kV Mokokchung(NL)-Longnak line needs to be checked.

Similar incident occurred at 21:36 Hrs of 07.09.2024.

DoP Nagaland may update.

B.12 Grid Disturbance in AGTCCPP generating station of NEEPCO on 12-09-2024:

At 13:43 Hrs of 12-09-2024, 132 kV AGTCCPP - Kumarghat Line, 132 kV Agartala - AGTCCPP 2 Line and 132 kV AGTCCPP - P K Bari D/C lines tripped due to which AGTCCPP generating station of Tripura power system was blackout due to loss of evacuation path.

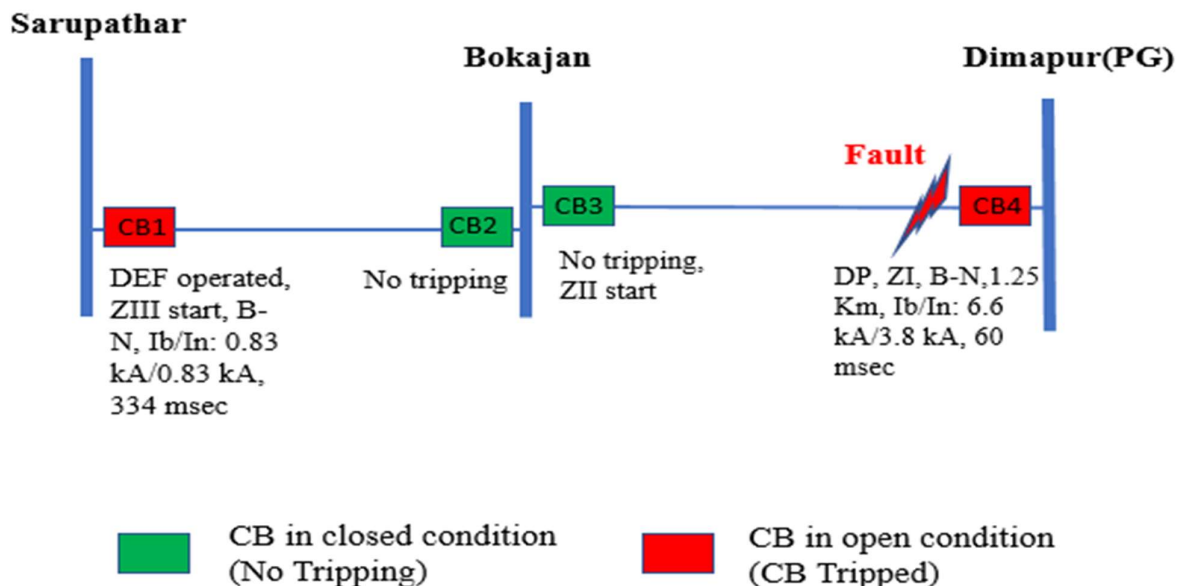


- Update the reason of non-submission of detailed report of the event as per IEGC 2023.

Sub-committee may deliberate

B.13 Grid Disturbance in Bokajan area of Assam on 25-09-2024:

At 16:24 Hrs of 25.09.2024, 132 kV Sarupathar-Bokajan line & 132 kV Dimapur-Bokajan line tripped.



As per DR analysis, B-N fault was in 132 kV Dimpaur-Bokajan line with Ib:6.6 kA, In:6.8 kA, Vbe:32 kV and cleared from Dimapur on Z-1 within 60 msec. At Bokajan end, Z-2 pickup.

The same fault was also detected by the DEF at Sarupathar for 132 kV Sarupathar-Bokajan line with Ib:834 A, In:834 A, Vbe:38 kV and cleared within 334 msec which seems unwanted.

Following observations:

- DEF overreached the fault from Sarupathar for 132kV Sarupathar – Bokajan line at 325ms (overlapping the Zone-2 timing at Bokajan end)
- Carrier intertrip did not occur at Bokajan end in spite of Zone-2 pickup at Bokajan and Zone-1 trip at Dimapur due to unhealthiness of Carrier Protection in the line. The healthiness of carrier protection need to be tested end to end on urgent basis.

As per detail report submitted by AEGCL-

The TMS at Sarupathar for 132kV Sarupathar – Bokajan line was re-evaluated and the updated TMS setting for DEF is 0.4 (coordinated with Zone 3 timing)

AEGCL is requested to update the status of checking of PLCC carrier scheme.

B.14 Frequent tripping of 132 kV Roing-Pasighat Line:

There were four grid disturbances in the Daporijo, Basar, Along and Pasighat areas of the Arunachal Pradesh Power System between 24th and 25th September'24 due to tripping of 132 kV Roing-Pasighat line.

Prior to the event, the Pasighat area of the Arunachal Pradesh Power System was connected to the rest of the NER Power System via the 132 kV Pasighat-Roing line, as the 132 kV Ranganadi-Ziro and 132 kV Daporijo-Ziro lines had been out of service since 23rd and 24th September 2024, respectively.

Sl No	Date and time	Elements tripped	Load Loss in MW
1	24-09-2024 and 19:17 Hrs	132 kV Pasighat-Roing from Roing	13
2	24-09-2024 and 23:15 Hrs	132 kV Pasighat-Roing from Roing	16
3	25-09-2024 and 01:17 Hrs	132 kV Pasighat-Roing from Roing	14
4	25-09-2024 and 03:47 Hrs	132 kV Pasighat-Roing from Roing	2

As per DR analysis, 132 kV Roing-Pasighat line tripped from Roing on Zone-II due to a Y-B fault within 100 msec. There was no tripping observed from Pasighat end. Zone-4 start was recorded, indicating that fault was not on 132 kV Roing-Pasighat line.

Following observations:

- Y-B fault occurred behind Pasighat substation switchyard with no ground path involvement and the faulty phases were 180 degrees out of phase, indicating a solid fault.
- ZII time delay at Roing for 132 kV Roing-Pasighat line is set to 100 msec due to an issue with the 48V DC supply at Pasighat.

DoP Arunachal Pradesh is requested to:

- Share the root cause and remedial measures taken.

- Check the phase clearance issue and rectify it to prevent further repetition.
- Expedite the commissioning of the DC supply at Pasighat at the earliest.

B.15 Tripping of 132 kV AGTCCPP-PK Bari D/C lines:

132 kV AGTCCPP-PK Bari I & II lines play a very crucial role in power evacuation of AGTCCPP generation. It has been observed that during January'24 to September'24, 132 kV AGTCCPP-PK Bari I & II lines tripped 12 times due to lightning fault. The list of tripping is shown below:

Sl. No.	Name of element	Tripping date and time	Revival date and time	Relay details (sending end)	Relay details (receiving end)
1	132 kV AGTCCPP - PK Bari (TSECL) 1 Line	22-02-2024 14:56	22-02-2024 21:38	DP, ZI, R-B-N, 40.51 Km	DP, ZI, R-B-N, 47.68 Km
2	132 kV AGTCCPP - PK Bari (TSECL) 2 Line	22-02-2024 14:56	22-02-2024 21:48	DP, ZI, R-B-N, 40.6 Km	DP, ZI, R-B-N, 47.93 Km
3	132 kV AGTCCPP - PK Bari (TSECL) 1 Line	24-03-2024 06:19	24-03-2024 10:09	DP, ZI, R-Y-B-N, 5.4 km	DP, ZII, R-Y-B-N, 77.3 km
4	132 kV AGTCCPP - PK Bari (TSECL) 2 Line	24-03-2024 06:19	24-03-2024 09:44	DP, ZI, R-Y-B-N, 5.4 km	DP, ZII, R-Y-B-N, 79.3 km
5	132 kV AGTCCPP - PK Bari (TSECL) 1 Line	31-03-2024 08:15	31-03-2024 15:28	DP, ZII, Y-N, 97.4 KM	DP, ZI, Y-N
6	132 kV AGTCCPP - PK Bari (TSECL) 2 Line	31-03-2024 08:17	31-03-2024 11:27	DP, ZII, Y-N, FD: 70.77KM	DP, ZI, Y-N, FD: 30 KM
7	132 kV AGTCCPP - PK Bari (TSECL) 2 Line	19-04-2024 10:25	20-04-2024 01:50	DP, ZII, B-N, 134 km	DP, ZI, B-N, 0.54 km
8	132 kV AGTCCPP - PK Bari (TSECL) 1 Line	19-05-2024 14:32	19-05-2024 18:52	DP, ZII, R-Y-N, 67.57 Km, Carrier Aided Tripping	DP, ZI, R-Y-N, 62.6 Km
9	132 kV AGTCCPP - PK Bari (TSECL) 2 Line	19-05-2024 14:58	19-05-2024 19:35	DP, ZII, Y-N, Carrier Aided Tripping	DP, ZI, Y-N
10	132 kV AGTCCPP - PK Bari (TSECL) 2 Line	25-07-2024 17:56	25-07-2024 22:03	DP, ZI, R-Y-N	DP, ZI, R-Y-N
11	132 kV AGTCCPP - PK Bari (TSECL) 1 Line	30-09-2024 06:24	30-09-2024 10:28	DP, ZI, R-Y, 22.45 Km	DP, ZI, R-Y-N, 60.69 Km
12	132 kV AGTCCPP - PK Bari (TSECL) 2 Line	30-09-2024 06:24	30-09-2024 10:43	DP, ZI, R-Y-N, 22.48 Km	DP, ZI, R-Y-N, 60.47 km

Therefore, tower footing impedance value may be checked and ensured within 10 Ohm. Further, installation of TLSA on lines in lightning prone areas may be explored to prevent outage of lines due to lightning.

B.16 Mock testing of System Protection Scheme (SPS):

As per Clause 16.2 of IEGC 2023, mock testing of SPS for reviewing SPS parameters & functions should be conducted at least once in a year.

In order to compliance the above clause, it has been planned to conduct mock testing of SPS related to outage 132 kV Khliehriat (PG)-Khliehriat D/C lines.

MePTCL is requested to provide the tentative dates for mock testing of SPS in the month of November'24.

B.17 Hands on training on PDMS and PSCT software for carrying out system study:

In order to review the protection settings of NER grid, it is necessary to carry out detailed system study of NER grid using PDMS and PSCT software.

In view of this, an offline hands-on training of the software is required for NERLDC protection team from M/s PRDC.

M/s PRDC is requested to arrange a hands-on training session on PSCT and PDMS software for carrying out necessary studies in the month of November'24.

B.18 List of Grid Elements (66 kV and Above) for Protection and System Study Analysis:

An email was sent on 16th September 2024, followed by a reminder on 4th October 2024, requesting verification of the attached file titled **List of grid elements 66 kV and above till May '24**. Maintaining this database is crucial for protection analysis as well as for accurate system study perspectives. This database would benefit all constituents by ensuring the accuracy and correctness of this record.

As of now, only SLDC Nagaland has responded to the email and provided the list of elements while other constituents have not provided any feedback or additional data regarding the transmission lines that may have been omitted from the file.

The verification and feedback are essential to ensure comprehensive protection schemes and effective system studies across the NER region.

All remaining constituents are requested to verify the file and provide the data (missing/omitted transmission lines) as soon as possible.

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.

In 68th PCCM, 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.

In 70th PCCM, NERLDC informed that only Nagaland, Manipur and Mizoram are submitting the monthly progress report, while Arunachal Pradesh and Tripura have not yet shared any monthly report. The forum strongly urged Ar. Pradesh and Tripura to provide the reports within two working days.

MS NERPC stated that NERLDC will send quarterly report to NERPC and NERPC to prepare the quarterly progress report in this month and send to CERC accordingly.

In 71st PCCM, NERPC stated that the report would be sent to CERC shortly.

Also, the forum requested Tripura and DoP Arunachal Pradesh to submit the monthly progress reports to NERPC and NERLDC timely.

Tripura and DoP Arunachal Pradesh *may further update*

C.2 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 71st PCCM

Sl No	Element Name	Tripping date and time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility (71 st PCCM)
1	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	Surajmaninagar	PLCC and funding issue. AR without carrier to be enabled shortly. The Relay Testing kit has been repaired but not received yet. After receiving of the kit AR to be enabled within one week.

2	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 arrived; work done. Testing for line 1 has been done and for line 2, testing to be done end of Sept'24
3	220 kV Mawngap - New Shillong 1	26-03-2024 12:22	DP, ZI, Y-E, FD: 27.82 Km	DP, ZI, Y-E	Mawngap	BB mal-operation issue. Coordination with NERPSIP. Visit of NERPSIP, ABB & Techno has been scheduled on 28 th Sept'24
4	132 kV Dimapur - Doyang 2	29-03-2024 13:10	DP, Z1, R-Y, FD: 72.6km	DP, Z1, R-Y	Doyang	CB procurement underway. By March'25
5	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 Successfully	AGBPP	Offer has been received from OEM and order would be placed soon.
6	132 kV Badarpur - Karimganj Line	05-05-2024 13:48	DP, ZII, Y-E, FD:27.25KM, Carrier Aided tripping &	DP, ZI, Y-E, FD: 0.2km	Karimganj	Relay shifting, from Jorhat, to be done by end of this month.

			AR Operated Successfull y			
8	132 kV Pare-North Lakhimpur 1 Line	13-06-2024 16:00	DP,ZI,R-E,FD: 7.46KM	DP,ZI,R-E,FD: 20km,1.6 kA	Pare HEP(NEEPCO) & North Lakhimpur	NEEPCO updated that the PLCC will be checked during end-to-end DT test Also, SPAR has been enabled on all line at Pare end.
9	132 kV AGTCCPP-Kumarghat Line	05-07-2024 12:45	DP, ZI, Y-B, 70.17	DP, ZI, Y-B, 30.92 Km (AR successful)	AGTCCPP	NEEPCO will check on 20 th Sept'24.
11	220 kV Behiating-Tinsukia I Line	13-07-2024 15:10	DP (DR not submitted)	DP, ZI, 10.59 Km (DR not submitted)	Both ends	AEGCL informed that the bay is commissioned by NERPSIP, issue with the CB so no AR. Forum requested to resolve the issue in coordination with NERPSIP.

Utilities may further update

C.3 PLCC issues follow up:

Update as provided by utilities in 71st PCCM

Sl. No	Line	Utility	Update
1	132 kV Dimapur-Kohima	DoP Nagaland	DPR (for DTPC) is completed except for budgetary offer. Offer has not been received from Hitachi yet.
2	132 kV Melriat-Zemabawk	Mizoram	For Wave Trap order has been placed with GE. Order will be received after 6 months as communicated by GE. As per 70 th PCCM NERTS had updated that PLCC is available, Mizoram had stated that CVT is available and WT had to be procured. Mizoram had also updated that DTPC was being planned instead of PLCC. Forum had suggested that both PLCC and DTPC has to be enabled. POWERGRID shall install only the PLCC. CVT installed.
3	132 kV Roing-Pashighat	DoP Ar. Pradesh	DoP Ar. Pradesh updated that 48 V battery has been received but not commissioned yet. To be done by Oct'24

Utilities may further update

C.4 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 19 numbers of SPS under operation and 1 number of SPS under implementation as listed tabulated below:

Sl. No.	SPS under operation	Long term measures	SPS mapping status in SCADA (YES/No) as per 69 th PCCM
1	<u>Tripping of 400kV Palatana-Silchar D/C-</u> 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	Done

		kept ON during shut down of 400 kV Palatana-Surajmaninagar(ISTS) line-1	
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)	
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	
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	
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	
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.	
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	-	
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	-	
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 tripping of 125 MVAR and 80 MVAR Bus Reactor at Imphal(PG)	-	Done
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)	

12	<p><u>SPS related to outage of 220 kV Azara-Sarusajai DC/220 kV Misa-Samaguri DC</u> -</p> <p>1) On tripping of 220 kV Azara-Sarusajai D/C: 140-150 MW load disconnection is to be done at Sarusajai and Kahilipara areas</p> <p>2) On tripping of 220 kV Misa-Samaguri DC: Load reduction of 50-60 MW at Samaguri area</p>	Commissioning of 400 kV Sonapur Substation. LILO of 400 kV Bongaigaon-Byrnihat Line at Sonapur.	
13	<p><u>SPS related to the outage of 132 kV Panyor HEP-Ziro Line</u> -</p> <p>Tripping of 132 kV Panyor-Ziro will cause disconnection of 33kV Load at Ziro</p>	Commissioning of 132 kV Khupi - Along Link/220 kV AGBPS-Namsai D/C	
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	
16	<p><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)</p>	Upgradation of 132 kV Surajmaninagar(TSECL) to 400 kV	Done

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	
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	
19	Related to outage of any one circuit of 132 kV Leshka – Khliehriat D/C	Reconductoring of 132 kV Khliehriat – Leshka D/C	
Sl. No.	SPS under implementation	Long term measures	
1	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	

Utilities may further update

C.5 Frequent tripping of 132 kV Loktak- Rengpang Line:

Due to frequent tripping of 132 kV Loktak - Rengpang line, Rengpang area of Manipur Power System was affected multiple times. Tripping details of the line from 01-June-24 to 30-Aug-2024 indicates that most of the tripping occurred due to line to ground (L-G) fault primarily because of the vegetation in the line.

The said line tripped **2 times, 10 times & 13 times** in the month of **June'24, July'24 & Aug'24** respectively resulted in **25** number of Grid Disturbances (GD-I) in the Manipur power. Further, Loktak (NHPC) has also raised concern regarding frequent tripping of the above line (132 kV Loktak - Rengpang) which is causing voltage fluctuation at the generating Units and may reduce the life span of the circuit breakers due to frequent CB operation.

In order to prevent frequent tripping of the above line from vegetation, MSPCL is requested to take following corrective action immediately.

- A.** Perform complete patrolling of the line & clear the vegetation infringement wherever required and also take all necessary measure to avoid frequent tripping of the said line.
- B.** Restore the 132 kV Jiribam - Rengpang line which is under prolong outage so as to improve reliability of power supply to Rengpang area.

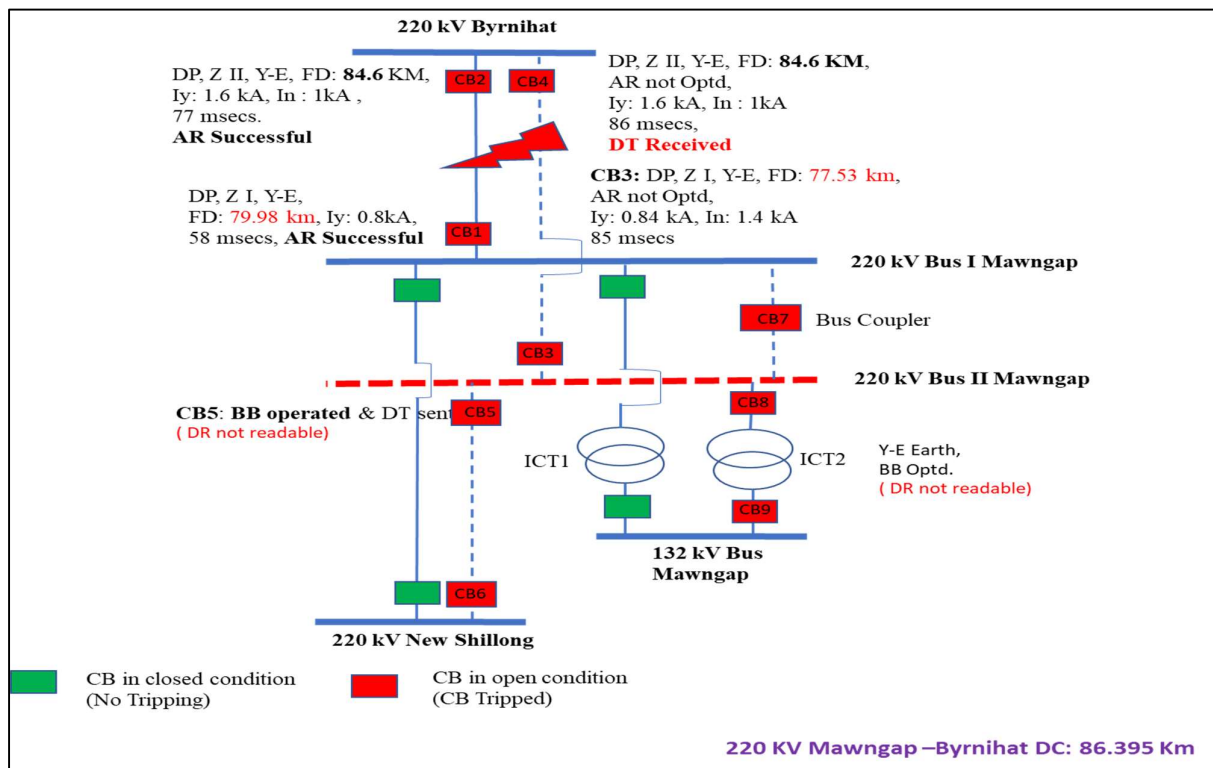
Manipur representative informed the forum that patrolling of the 132kV Loktak-Rengpang line & vegetation infringement clearance has been done between 6th and 9th Sept'24 despite the challenges being posed by current Law and Order situation on site. OTPC informed that a tripping had occurred after the works as mentioned by Manipur. The forum requested Manipur to check for other issues in the line.

Regarding restoration of 132 kV Jiribam-Rengpang line he informed the forum that a tower had collapsed due to road expansion work by NHIDCL and therefore tower shifting was required. He further stated that the line might be restored by October'24.

Manipur may further update

C.6 Maloperation of Bus Bar protection at 220 kV Mawngap Substation:

At 12:50 Hrs of **15-08-2024**, metallic fault observed in Y-E phase in the 220 kV Mawngap - Byrnihat I & II line. 220 kV Mawngap - Byrnihat I Line auto-reclosed successfully from the both end. However, Bus Bar protection operated in 220 kV Bus II which resulted into the tripping of 220 kV Mawngap - Byrnihat II Line, 220 kV Mawngap - New Shillong II Line, Bus Coupler and ICT-2 at Mawngap.



MePTCL is requested to update the following: -

1. Reason of unwanted operation Bus Bar protection, leading to the tripping of all the connected elements in 220 kV Bus II and its corrective measures taken to prevent re-occurrence.
2. Reason of misleading fault distance showing at Mawngap for 220 kV Killing I & II line.
3. Status of incorporation of Digital Channel of DR at Mawngap (Each phase CB status needs to be added)

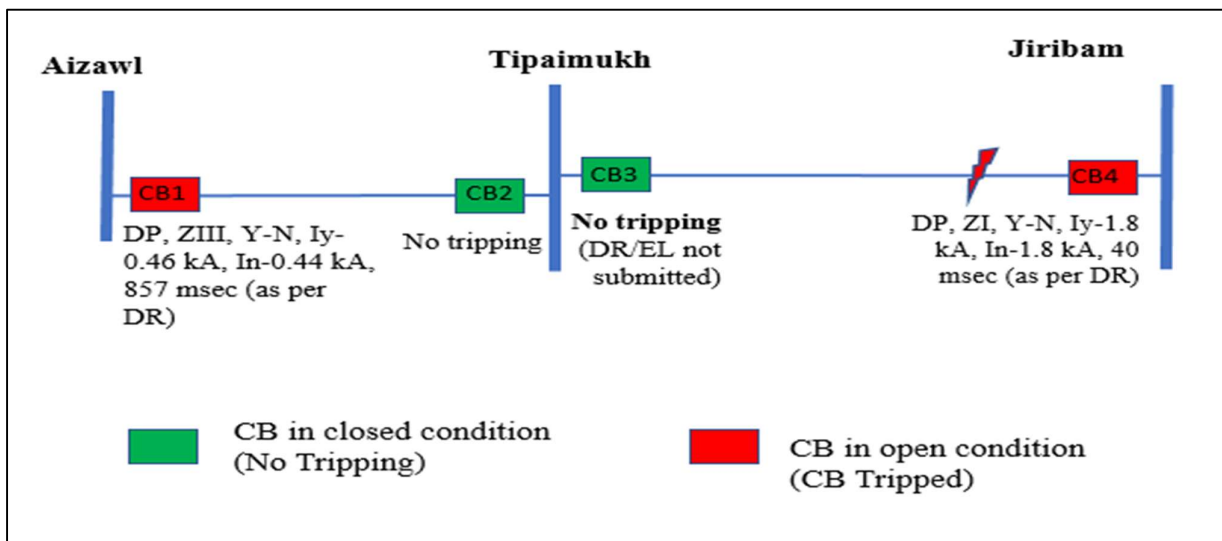
Similar event also occurred at 16:51 hrs. of 28-08-2024.

In 71st PCCM, MePTCL representative informed the forum that this mal-operation of Bus Bar issue had to be resolved by NERPSIP. He also informed the forum that on 28th Sept'24 representative from NERPSIP, ABB & Techno would visit the Mawngap SS and would attend the problem. Meanwhile forum suggested MePTCL to attend this problem with the help of NERTS before 28th Sept'24 once.

MePTCL may update

C.7 Tripping of 132 kV Aizawl-Tipaimukh line on 30th August, 2024

At 09:32 Hrs of 30.08.2024, 132 kV Aizawl-Tipaimukh and 132 kV Jiribam-Tipaimukh lines tripped.



As per DR analysis, Y-N fault in 132 kV Jiribam-Tipaimukh line cleared within 40 msec from Jiribam end on operation of DP, ZI. Carrier signal was sent to Tipaimukh end from Jiribam. However, CB at Tipaimukh end did not trip until 800 msec from inception of fault which led to clearing of fault by tripping of healthy 132 kV Aizawl-Tipaimukh line from Aizawl end on operation of DP, ZIII within 857 msec.

Similar incident occurred on 25.08.2024.

MSPCL is requested to furnish the reason for non-opening of CB at Tipaimukh end for 132 kV Jiribam-Tipaimukh line and remedial actions taken.

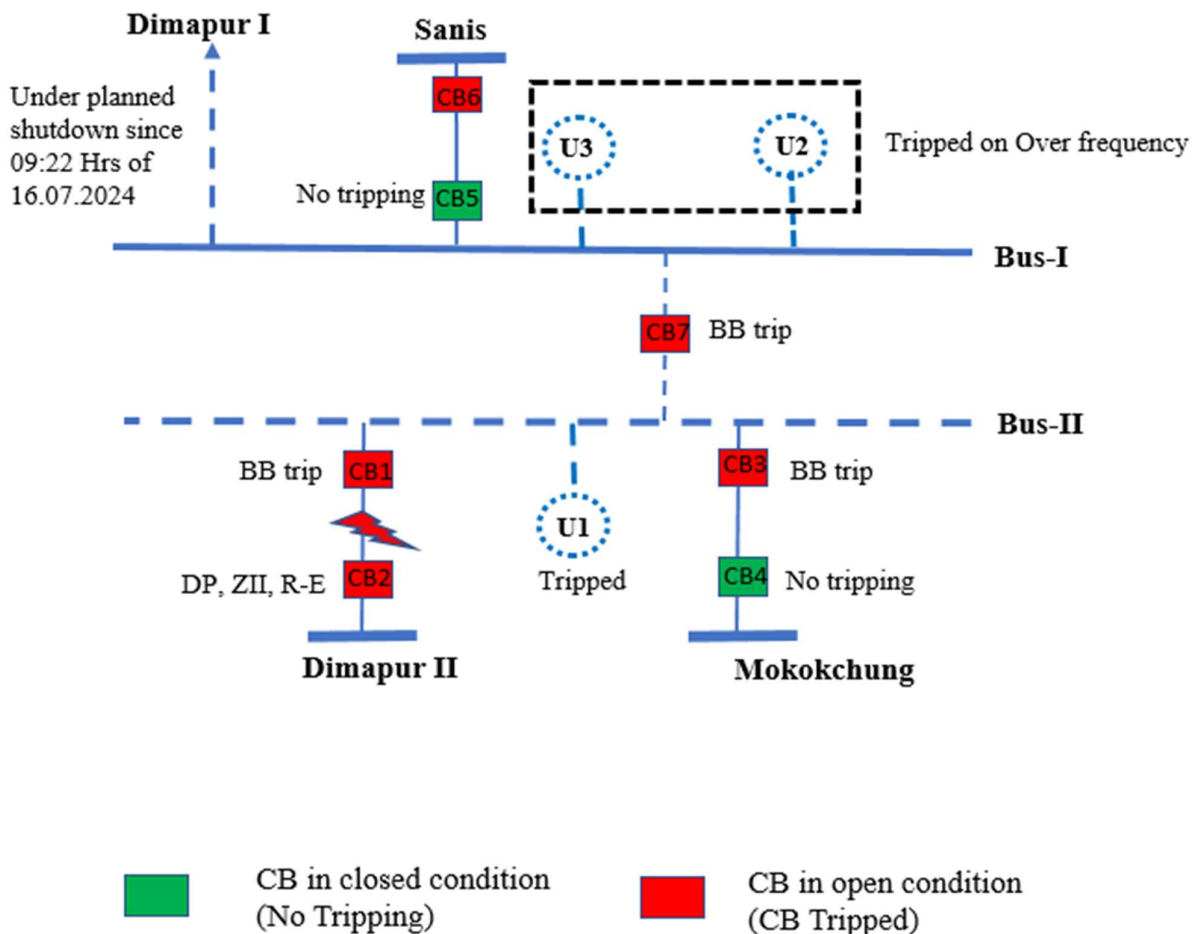
In 71st PCCM, Manipur representative informed that checking by local staffs was done recently but expert visit was required. He further informed the forum that due to landslide issue road was not approachable for them to send any skilled staff to Tipaimukh SS to download DR/EL for the event for further analysis and submission to NERLDC. He further stated that access to Tipaimukh was through Aizawl only. Therefore, Manipur requested the forum to provide support either from Mizoram or NERTS.

Forum requested Mizoram & NERTS to provide necessary support to Manipur at earliest.

MSPCL may update

C.8 Grid Disturbance in Doyang generating station of NEEPCO Power System on 16.07.2024:

At 10:08 Hrs of 16-07-2024, 132 kV Dimapur-Doyang II (132 kV Dimapur-Doyang I was under shutdown), 132 kV Doyang-Mokokchung and 132 kV Doyang-Sanis lines tripped. Subsequently, all three units of Doyang tripped leading to blackout in Doyang generating station of NEEPCO power system. Generation loss of 73 MW occurred.



Event Analysis: As per DR, R-E fault (Ir-1.1 kA, In-1 kA) occurred in 132 kV Dimapur-Doyang II line at 10:08:36.655 Hrs and cleared within 233 msec on operation of DP, ZII (Carrier aided trip) from Dimapur. At Doyang, R-E fault detected

and Bus bar trip signal issued instantly. Y & B-phase pole of CB tripped within 52 msec. However, fault current was persisting in R-phase pole and disappeared at 10:08:36.820 Hrs on operation of ZI.

Bus coupler and 132 kV Mokokchung line tripped at Doyang on Bus bar trip leading to blackout of 132 kV Doyang Bus-II.

At the same time, 132 kV Doyang-Sanis line also tripped. There was no tripping from Doyang end (ZIV pickup). Fault current disappears within 78 msec, which may be due to tripping from Sanis end (no DR submitted by DoP)

Doyang Unit-1 tripped at 10:08:36.744 Hrs and Unit-2 & 3 tripped on over frequency.

Observations:

1. Operation of Bus bar protection at Doyang for fault in 132 kV Dimapur-Doyang II line is unwanted. Bus bar relay configuration and wiring to be checked.
2. Non-opening of R-ph CB pole at Doyang for 132 kV Dimapur-Doyang II line after issuing of BB trip.
3. Delayed ZI start after 169 msec of fault initiation at Doyang end for 132 kV Dimapur-Doyang II Line. Distance protection setting needs to be reviewed.
4. Non-tripping of Doyang Unit-1 on BB trip needs to be checked by NEEPCO. From DR data, it is not clear which protection operated.
5. DR time duration is insufficient at Doyang for 132 kV Doyang-Sanis line. It has to be increased to 3 sec with pre fault of 500 msec and post fault of 2.5 sec.

NEEPCO is requested to update the root cause and remedial measures taken.

Deliberation of the 70th PCCM –

NEEPCO informed the fault was in the Bus. Hence operation of Bus Bar protection was correct.

NERLDC pointed that after the initiation of bus bar trip command, Y&B phase pole opened at Doyang for 132 kV Dimapur-Doyang II line. R-phase fault then sensed by the Main at Doyang in DP, ZI.

2.NERPC also highlighted that Doyang-Sanis should not have tripped from Sanis end and consequently Unit 2 and Unit 3 should not have tripped as evacuation path would have been available

3.DoP Nagaland stated that the Doyang-Sanis line had not tripped.

In 71st PCCM, the forum decided that the Protection System Analysis Group (PSAG) constituted by NERPC as per revised nomination would review the issue shortly and update in the next PCCM.

PSAG 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 71st PCCM

Sl no	State	Important Transmission lines where AR has to be enabled at the earliest	Status (69th/68th PCCM)	Status as per 71st 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 has been enabled on the lines.

			3-Ph AR will be enabled by March'24.	
2.	Assam	All 220kV and 132kV lines	<p>For 220kV Some bays at Tinsukia, NTPS and Kathalguri remaining, to be done soon</p> <p>For 132kV bays Testing and enabling of AR is being done gradually, to be completed by June'24.</p>	<p>Process underway.</p> <p>220kV – Completed except for Kathalguri-tinsukia line which will be done within 2 months. Delay is due to the shutdown issue with Discoms.</p> <p>132kV – completed except for Dhemaji and Majuli Substations, to be done by Oct'24.</p>
3.	Manipur	132kV Imphal-Ningthoungkong	DPR preparation underway, to be prepared by March'24	<p>1. In 71st PCCM Manipur updated that 132kV Imphal-Ningthoungkong line work has been completed & 4 additional line have been considered for AR implementation which work will be completed by end of Sept'24.</p>

				DPR for PLCC 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)	Matter was thoroughly discussed in State protection committee. Report of the meeting has been submitted to NERPC. It was further updated that AR on 132kV Lumshnong-khliehriat line and Lumshnong-Panchgram lines will be enabled by next week.
5.	Tripura	132kV Agartala-S M Nagar (TSECL), 132kV Agartala-Rokhia DC, 132kV, 132kV Agartala-Budhjungnagar	To be done during internal audit.	Relay testing kit has been repaired but not received yet. Target-Sept.'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 71st PCCM -

Name of utility	Last updated status (70th /69th/68th PCCM)	Status as per 71st 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 same considering the special case of NER	MS, NERPC stated that funding for the LDP considering the special case of NER will be taken up as resolution by RPC forum
MSPCL	DPR under preparation, to be submitted within one month.	DPR has been approved & NIT to be floated
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 has been prepared and it would be submitted to PSDF committee for funding by next month for inclusion in reliable communication scheme. For NEHU-NEighrims line, NERPSIP informed the forum that fiber for this line is not under the scope of NERPSIP. Therefore, forum suggested MePTCL to cover this in any other scheme.

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 in final stage. Price offer has been received from one vendor and awaited form other vendors. The DPR would be prepared by end of Sept.'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. DoP Nagaland updated that FOTE is present. NEEPCO updated that GE engineers will visit on 15 th July.	<ol style="list-style-type: none"> 1. NEEPCO updated that GE engineers had visited the site and work had been completed. 2. Report has been submitted to NERPC. 3. Agenda may be dropped
TSECL	132kV 79 Tilla-Budhjungnagar. DPR to be prepared. Cost estimate submitted to TIDC to arrange for ADB funding. TIDC approval is still awaited for fund. Approved for ADB funding. E-tendering underway. Regarding Rokhia-N.Rokhia link, he updated that the breaker has been received. MS, NERPC suggested to apply under PSDF	DPR has been sent to PSDF committee for funding.

Utilities may further update

D.3. Status against remedial actions for important grid events:Status as updated in the 71st PCCM:

Sl No	Details of the events(outage)	Remedial action suggested	Name of the utility & previous update	Status as per 71st 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.	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,	Carrier inter-trip for 132kV DHEP-Mokokchung to be implemented by DoP Nagaland (NO PLCC on the line.	DoP Nagaland (DPR is under preparation for PLCC, by July'24	Offer from Hitachi is still awaited.

	Nagaland) D/C lines on 30th July	Matter under consideration of Higher authorities)		
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 line, 132 kV Loktak-Rengpang line & Loktak Units 1,2 and 3 on 3rdAug	> 5MVA TRAFO (Aux. Transformer) to be repaired ->5MVA Auxiliary TRAFO panel to be repaired by NHPC	NHPC TX manufacturing underway. To be completed by Dec'24	Not received yet due to landslide issue.
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.	R & M work to start in Nov'24
6.	Outage of 220 KV Bus Bar Protection Scheme at	Bus-Bar protection of 220kV bus at Killing SS	MePTCL BBR defective. Order placed in	1.Card arrived in India, but

	400/220/132 KV Killing SS		Oct'23, will arrive in around 7 months, i.e. by May or June'24	not received yet. 2. Meanwhile Forum requested NERTS to provide card to MePTCL if available. NERTS assured the forum that they would check the availability of card and update
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 May'24	OEM visited, PLCC defective, will procure at earliest
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	New bays have to be integrated to ABB relay, so new cards have to be procured, commissioning

				may go beyond Dec'24
9.	AR issue at Gohpur end for 132kV Nirjuli-Gohpur line	Panel replacement underway	AEGCL - By April'24	Done, Agenda may be dropped
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	Done, Agenda may be dropped
12	Multiple trippings in 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. DPR under preparation, to be prepared within one month	DPR has been prepared and submitted to higher authority
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	Done, Agenda may be dropped
14	Issue with CB at P K Bari end for	Pneumatic CB at P K Bari end to be	TSECL	NERPSIP informed the

	Dharmangar line (agenda item C.5 of 69 th PCCM.) Powergrid has reduced timing of zone settings at Kumaraghat end for P K Bari line. The settings will be reverted as soon as the breaker issues is resolved by TSECL	replaced with spring charging type CB	(Work in progress)	forum that M/s Siemens was working and work would be completed within one month
15	At 12:38 Hrs of 09.07.2024, 132 kV Along - Pasighat Line, 132 kV Roing-Pasighat Line & 132 kV Along-Basar Line tripped leading to blackout of Along & Pasighat areas of Arunachal Pradesh	Pneumatic CBs at Along end for Basar line to replaced with Spring type by Oct'24. LBB relay to be rectified at Along SS	DoP Ar. Pradesh (replacement within 2 months)	Covered under PSDF scheme & parallely exploring for State funding also
16.	At 14:56 Hrs of 17-07-2024, 132 kV NEHU-NEIGRIHMS line & 132 kV Khleihriat-NEIGRIHMS line tripped leading to blackout of NEIGRIHMS area.	Neigrihms end for NEHU line Relay to be replaced shortly	MePTCL	

Utilities may further update
