सत्यमेव जयते

Agenda for 69th PCCM

Azadi Ka Amrit Mahotsav

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

North Eastern Regional Power Committee

Agenda for

69th Protection Coordination Sub-Committee Meeting

Date: 11/07/2024 (Thursday)

Time: 11:00 hrs.

Venue: NERPC conference Hall, Shillong

A. CONFIRMATION OF MINUTES

1. CONFIRMATION OF MINUTES OF THE 68th PROTECTION SUB-COMMITTEE MEETING OF NERPC.

Minutes of the 68th PCC Meeting held on 13th June, 2024 (Thursday) at NERPC Conference Hall, Shillong was circulated vide letter No.: NERPC/SE (O)/PCC/2024/1341-1382 dated 2nd July, 2024.

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

The Sub-committee may confirm the minutes of 68th PCCM accordingly.

B. ITEMS FOR DISCUSSION

B.1 Protection Audit of NER:

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

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

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

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

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

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

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

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

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

In 68th 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 was underway and would be completed by June'24. He also updated that third party audit of most of the substations were carried out by NERPC in 2021 and in January'24 and May'24. For rest of the substations the audit to be planned soon.
3. Mizoram stated that reports of internal audit had been shared with NERPC and schedule for external audit had been updated in the google sheet.
4. TSECL updated that internal audit committee had been formed and the internal audit had been stared. Forum requested TSECL to plan for third party audit also.
5. Manipur updated that internal audit report had been shared with NERPC. Forum requested to plan for the external audit at the earliest subject to Law and Order situation in the State.
6. DoP Arunachal Pradesh updated that internal audit of Chimpu SS was underway and audit of Lekhi would be done by this month. He also stated that the audit reports would be shared in due time to NERPC.
7. OTPC updated that internal audit of Palatana station had been started and 3rd Party audit had already been conducted in Nov'23.
8. NTPC informed that 3rd party audit would be conducted by CPRI by June 2024.

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

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 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.

In 68th PCCM, MS NERPC stated that audit would tentatively be conducted by end of July'24.

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.

In 68th PCCM, M/s PRDC updated that the training (online) had been scheduled on 20th and 21st June'24. Forum requested the States to send the nominations for the training at the earliest.

Sub-committee may deliberate

B.4 <u>Analysis and Discussion on Grid Disturbances which occurred in NER grid in June'24 in compliance with IEGC 2023:</u>

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 June 2024 based on the draft report prepared by NERLDC (**annexure B.4**).

Sub-committee may deliberate

Agenda from NERLDC

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

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 01-06-2024 to 30-06-2024 as on **04-07-2024** is given below:

Name of Utility	No of trippings	Total FIR, DR & EL to be submitted			Total FIR, DR & EL not submitted			% Submission of		
		FIR	DR	EL	FIR	DR	EL	FIR	DR	EL
DoP, Arunachal Pradesh	14	25	20	22	6	1	1	76	95	95
AEGCL	35	65	61	61	64	20	20	2	67	67
APGCL	0	0	0	0	0	0	0	No event		
MSPCL	37	55	51	52	14	9	9	75	82	83
MePTCL	36	56	55	55	8	13	13	86	76	76
MePGCL	4	18	14	13	17	5	11	6	64	15
P&ED, Mizoram	2	3	3	3	0	0	0	100	100	100
DoP, Nagaland	11	15	15	15	0	0	0	100	100	100
TSECL	22	43	41	41	40	5	5	7	88	88
TPGCL	3	3	2	2	3	2	2	0	0	0
POWERGRID	26	41	36	35	2	2	2	95	94	94
NEEPCO	46	57	44	43	12	5	5	79	89	88
NHPC	6	17	17	17	0	0	0	100	100	100
NTPC	1	1	1	1	1	1	1	0	0	0
OTPC	4	5	5	5	0	0	0	100	100	100
IndiGrid	7	10	10	10	2	1	1	80	90	90
MUML	1	1	1	1	0	0	0	100	100	100
KMTL	0	0	0	0	0	0	0	No event		

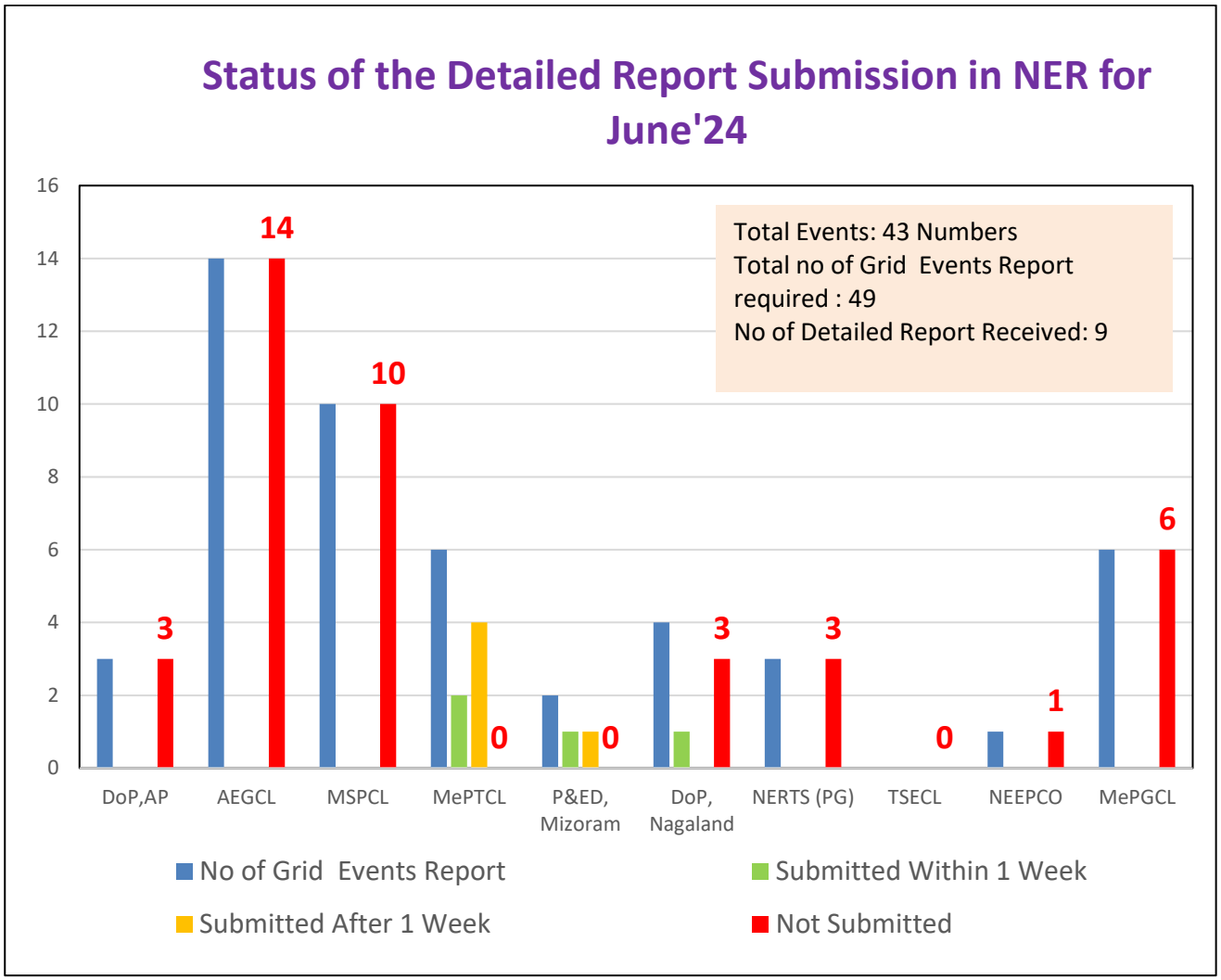
Concerned Utilities are requested to upload Disturbance Recorder (DR), Event Logger (EL) outputs for grid events along with a First Information Report (FIR) in Tripping Monitoring Portal (https://tripping.nerldc.in/Default.aspx) for analysis purpose. In light of the cybersecurity measures implemented 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.

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 **June, 2024 as on 03-07-2024** 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 <u>Non-operation of auto recloser in Important Grid Elements for transient faults in June 2024:</u>

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
1	400 kV Imphal - Silchar 2 Line	03-06-2024 12:03	DP,ZI,R-E,FD: 125.8 km	DP,ZI,R-E,FD: 18.5 km	Both Ends	
2	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,1.6kA	Pare HEP(NEEPCO) & North Lakhimpur	
3	132 kV Badarpur - Karimganj Line	17-06-2024 08:01	DP,ZII,B-E, FD: 22.93Kms, Carrier aided Tripping (**AR operated & ToR**)	Z1, OC, 5.04Kma, 3 ph	Karimganj (AEGCL)	
4	400 kV P K Bari - Silchar 1 Line	18-06-2024 12:21	DP,ZI,Y-E,FD:26.19KM	DP, ZI,B-E, FD:111.62 KM **(AR Successful)**	P K Bari (INDIGRID)	
5	220 kV AGBPP - Mariani (AEGCL) Line	26-06-2024 09:15	DP,ZI,R-E,FD:46.47 km	DP,ZI,R-E,FD:11.27 km **(AR Successful)**	AGBPP(NEEPCO)	

Sub-committee may deliberate

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

As per Regulation No. 15(6), Protection Code - Users shall submit the following protection performance indices of previous month to their respective RPC and RLDC

on monthly basis for 220 kV and above (132 kV and above in NER) system by 10th of every month for previous month indices, which shall be reviewed by the RPC:

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

Where,

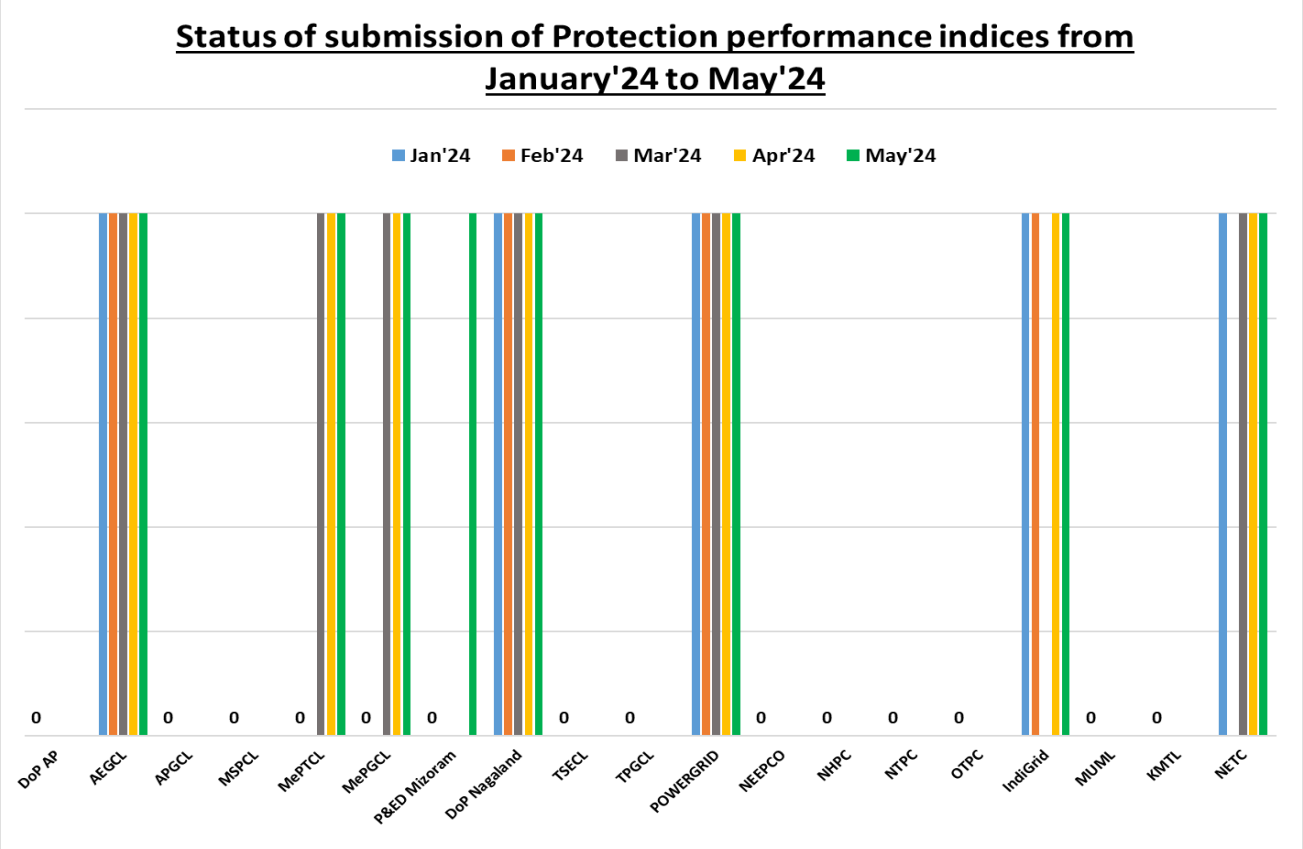
Nc: number of correct operations at internal power system faults

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

Nu: Number of unwanted operations.

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

It has been observed that Protection Performance Indices are not being submitted by all the users.



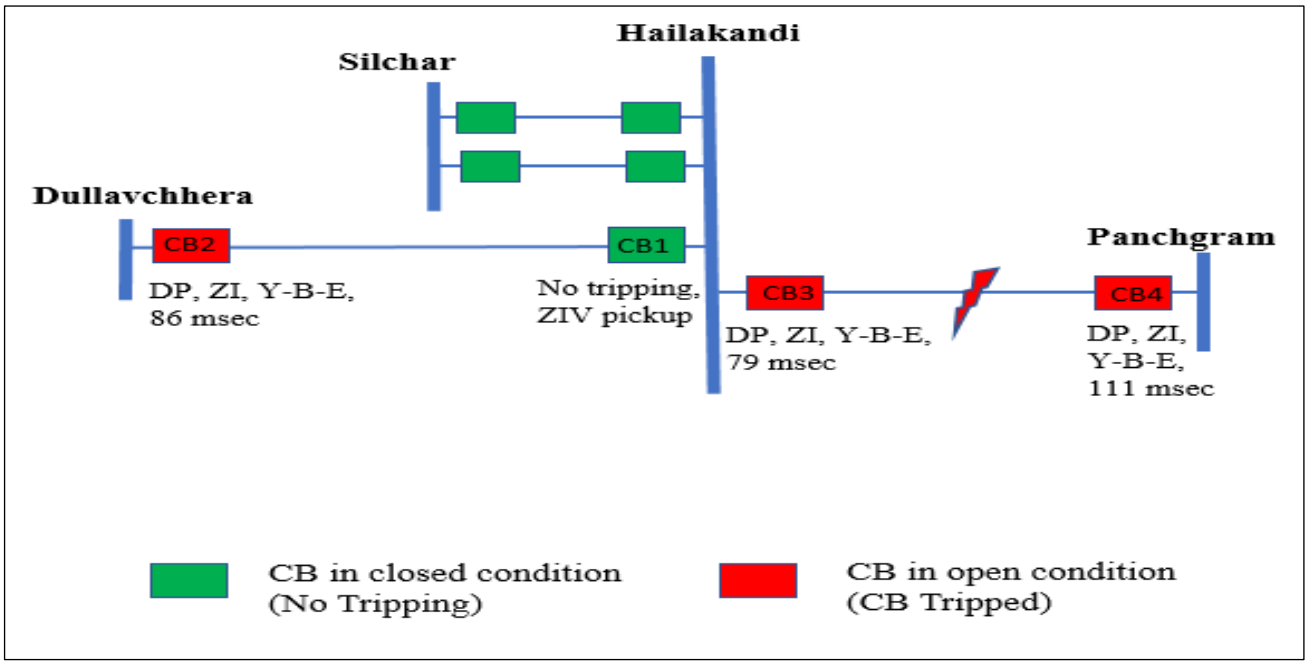
It has been observed that **DoP AP, APGCL, MSPCL, TSECL, TPGCL, NEEPCO, NHPC, OTPC, MUML & KMTL** has not submitted the protection performance indices since Jan'24 which is a violation of **IEGC Clause 15.6.**

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**.

Sub-committee may deliberate

B.9 Unwanted tripping of 132 kV Dullavchhera-Hailakandi line on 05.05.2024

At 13:53 Hrs of 05.05.2024, 132 kV Dullavchera-Hailakandi line & 132 kV Hailakandi-Panchgram line tripped.



As per DR analysis, Y-B-E fault (Iy-8.3 kA, Ib-7.3 kA, In-2.6 kA) in 132 kV Hailakandi-Panchgram line cleared within 79 msec from Hailakandi end on DP, ZI & 111 msec from Panchgram end on DP, ZI.

At the same time, Dullavchhera end relay detected the fault in ZI and CB tripped within 86 msec, which is inferred to be unwanted. There was no tripping from Hailakandi end and ZIV pickup which clearly indicates that fault is beyond the line.

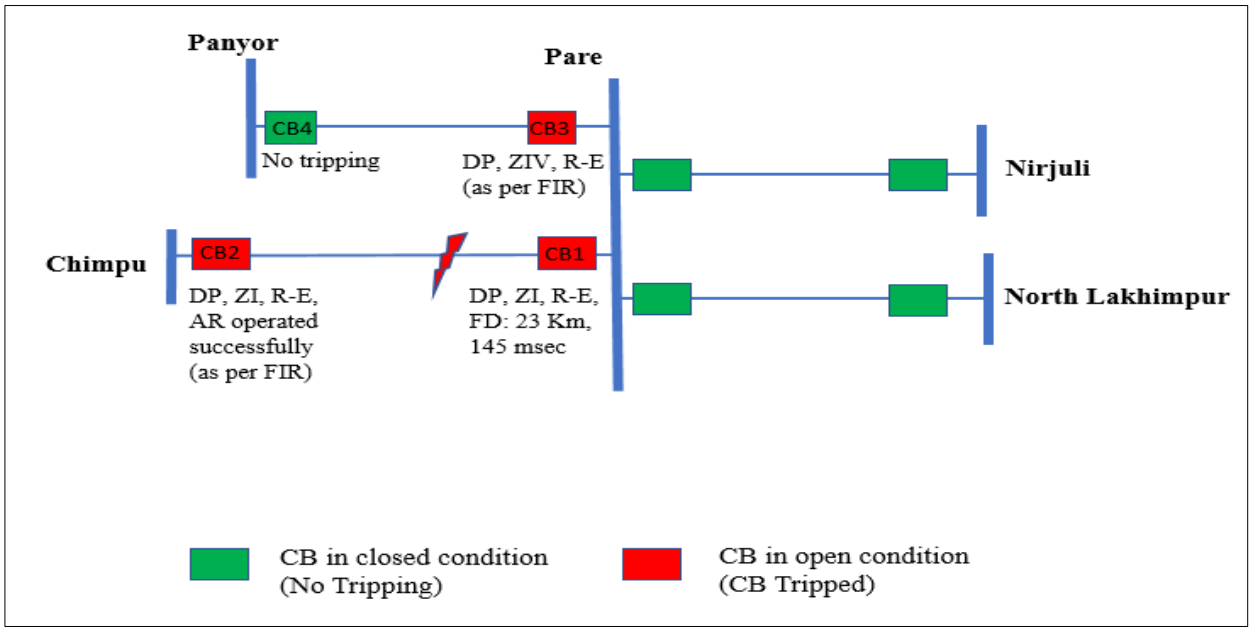
AEGCL may update the following-

1. ZI overreaching issue at Dullavchhera end for 132 kV Dullavchhera-Hailakandi line.
2. The DR time drift Issue of **23 minute** at Dullavchhera end.

Sub-committee may deliberate

B.10 Multiple tripping of 132 kV Panyor-Pare line & 132 kV Pare-Itanagar line on 09.05.2024

At 02:07 Hrs of 09.05.2024, 132 kV Pare-Itanagar & 132 kV Panyor-Pare lines tripped.



As per DR analysis of 132 kV Pare-Itanagar line, R-E fault initiated at 02:07:24.071 Hrs. After 74 msec, R-phase current increased to 2.9 kA. Fault cleared within 145 msec on operation of DP, ZI (initially ZII pickup) from Pare end.

For 132 kV Panyor-Pare line, there was no tripping from Panyor end. However, Pare CB tripped on DP, ZIV (as per FIR, no DR/EL submitted)

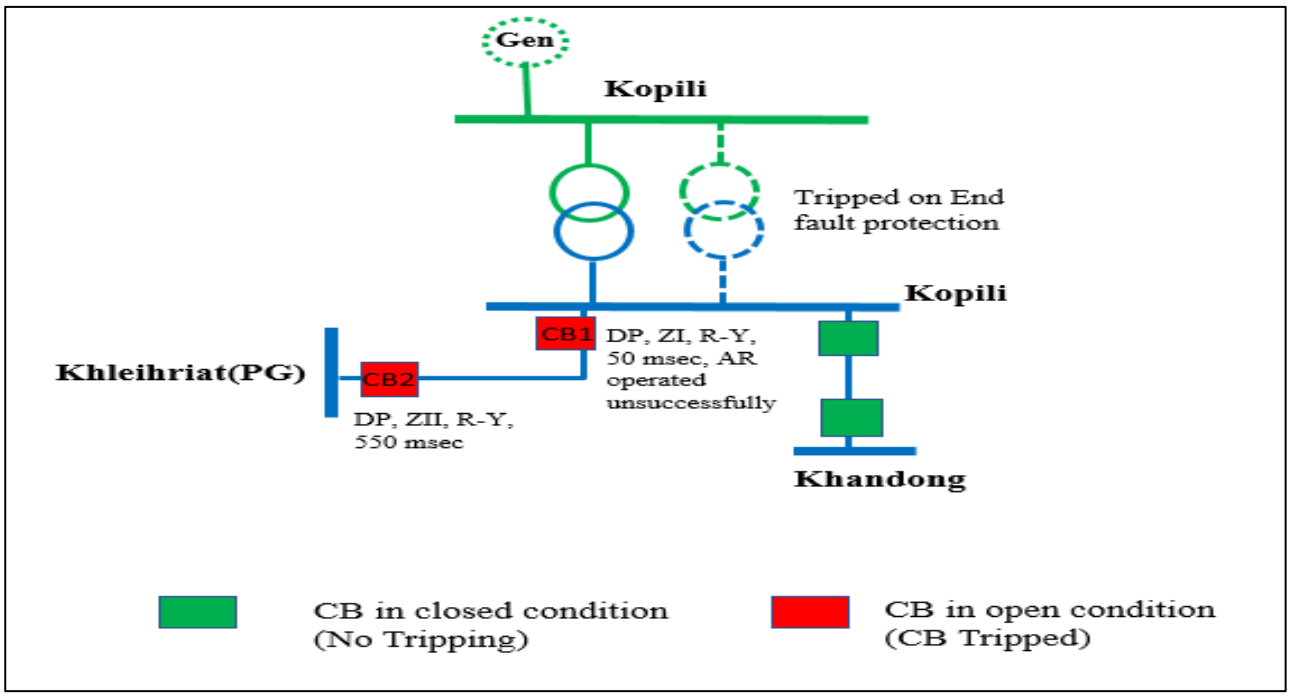
DoP AP & NEEPCO may update the following-

1. Reason for tripping of 132 kV Panyor-Pare on Z4 and its corrections.
2. Reason for Non operation of AR during Single phase fault at Pare end of 132 kV Pare-Itanagar line.

Sub-committee may deliberate

B.11 <u>Tripping of 220/132 kV Kopili ICT-II on 28.05.2024</u>

At 01:43 Hrs of 28.05.2024, 132 kV Kopili-Khleihriat line & 220/132 kV Kopili ICT-II tripped.



As per DR analysis of 132 kV Kopili - Khleihriat line, R-Y fault (Ir-6.5 kA, Iy-6.5 kA) cleared within 50 msecs on operation of DP, ZI from Kopili end and within 550 msec from Khleihriat end on operation of DP, ZII (As reported by POWERGRID, the line tripped due to falling of tree on line at span no. 21 to 22).

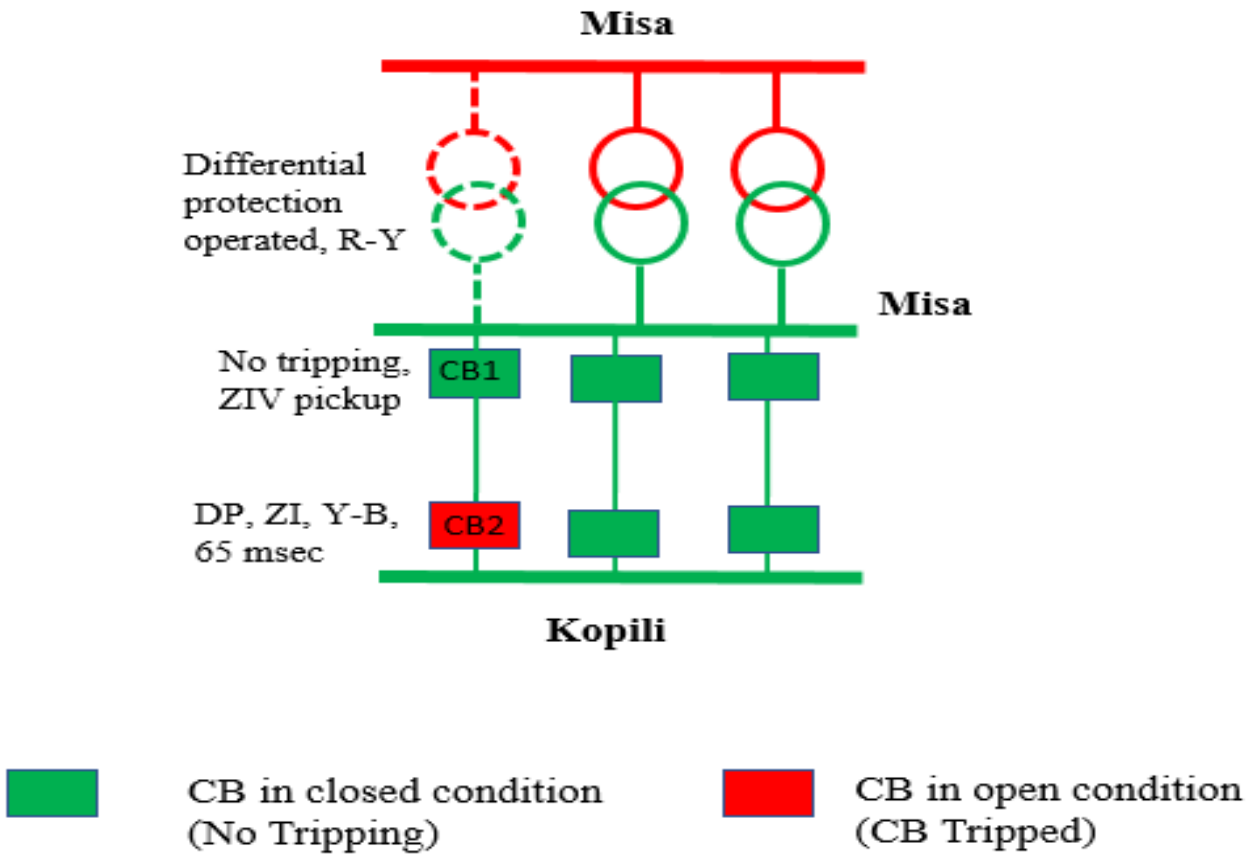
At the same time, 220/132 kV ICT-II at Kopili tripped on operation of end fault protection (EFP) as per information received from NEEPCO.

NEEPCO may update the reason for operation of end fault protection of Kopili ICT-II for fault beyond line and its corrective measures.

Sub-committee may deliberate

B.12 <u>Unwanted tripping of 220 kV Misa-Kopili I line on 28.05.2024</u>

At 06:39 Hrs of 28.05.2024, 220 kV Misa-Kopili I line and 500 MVA, 400/220 kV ICT-I at Misa tripped.



400/220 kV ICT-I at Misa tripped on operation of differential protection.

As report by POWERGRID, a long branch of tree had fallen over middle and bottom conductor and touched tower cross arm of 220 kV side dead-end tower due to heavy storm which caused immediate tripping of ICT-I at Misa on diff. protection.

At the same time, 220 kV Misa-Kopili I line tripped from Kopili end on operation of DP, ZI (fault cleared within 65 msec). There was no tripping from Misa end.

ZIV was pickup from Misa end which clearly indicates that fault is in reverse direction.

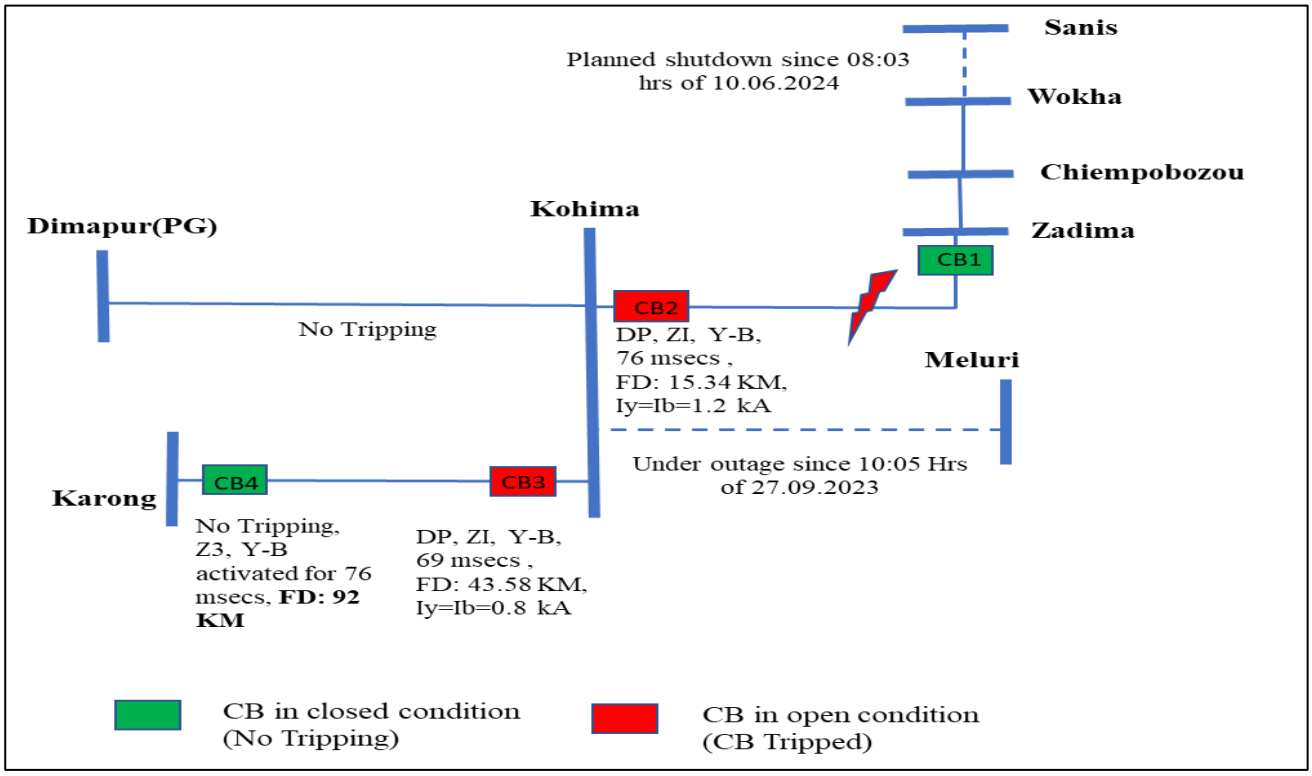
NEEPCO is requested to update the reason of ZI tripping at Kopili end and its corrections for 220 kV Misa-Kopili I line to avoid any further reoccurrence.

Sub-committee may deliberate

B.13 <u>Grid disturbance in Zhadima, Chiephbozou & Wokha areas of Nagaland on 10-June-24:</u>

Zhadima, Chiephbozou & Wokha areas of Nagaland Power System were connected with rest of NER Grid through 132 kV Sanis-Wokha and 132 kV Kohima-Zhadima

lines. (132 kV Sanis-Wokha was under planned shutdown since 08:03 hrs of 10.06.2024)



At 22:30 Hrs, Y-B fault occurred in 132 kV Kohima- Zhadima line as confirmed from the DR of **CB2** showing ZI (tripping) & CB4 showing ZIII (no tripping).

However, tripping of 132 kV Karong –Kohima line at Kohima on Z-I i.e. CB3 was unwanted.

DoP, Nagaland is requested to update:

1. Reason for tripping at Kohima i.e. CB3 on ZI protection for Reverse fault.
2. Rectification of 2 min time lag in the DR of Kohima end for 132 kV Karong –Kohima.

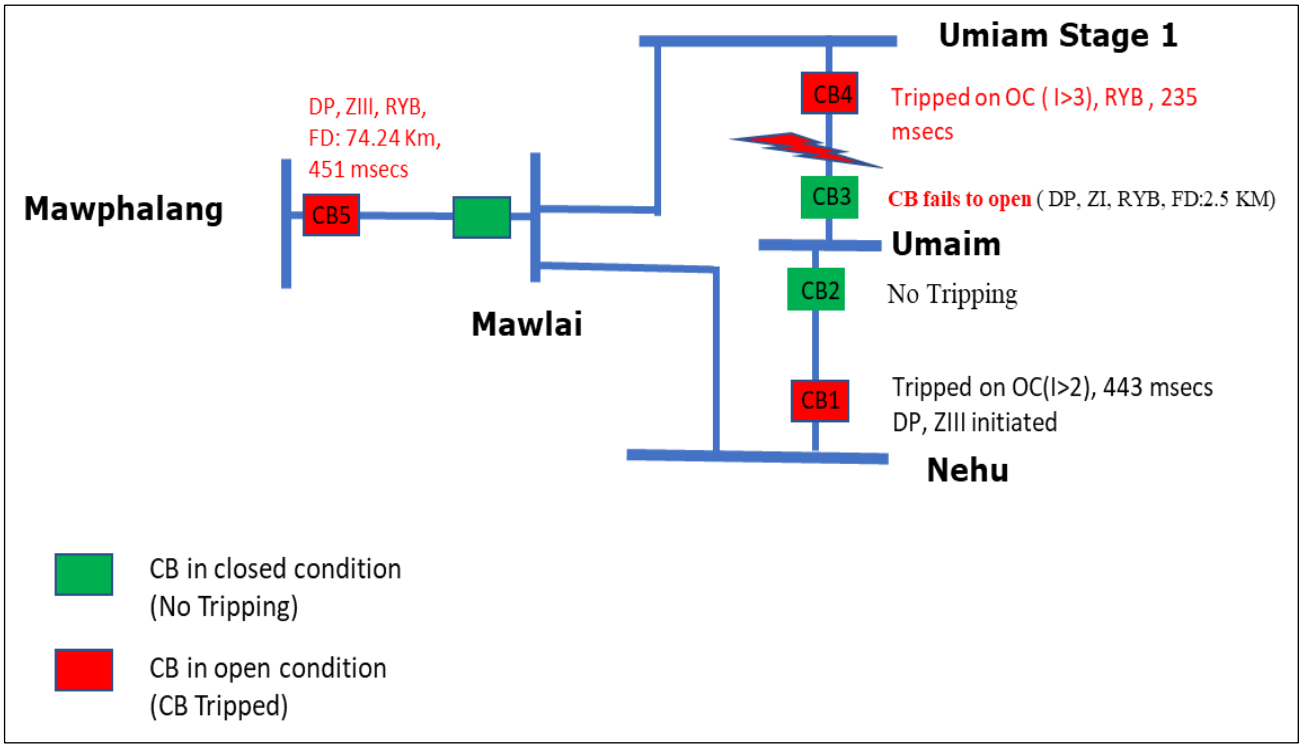
Also, MSPCL is requested to highlight the action taken on 1 Hr time lead in the DR of Karong end for 132 kV Karong –Kohima.

Sub-committee may deliberate

B.14 <u>Grid disturbances in Umiam of Meghalaya Power System on 24-06-2024:</u>

Umiam S/S of Meghalaya Power System was connected with rest of NER Grid via 132kV Umiam Stage I - Umiam and 132 kV Nehu-Umiam lines.

At **13:38** Hrs of 24-06-2024, 132kV Umiam Stage I-Umiam and 132 kV Nehu-Umiam lines tripped. Due to tripping of these lines, Umiam S/S of Meghalaya Power System was isolated from NER Grid.



As per DR analysis of Umiam end of 132 KV Umiam Stage 1- Umiam, R-Y-B (Ir-Iy-Ib-2.5 kA) phase fault initiated at 13:35.32.800 Hrs. Distance Protection detected the fault in ZI and Trip command issued. However, CB fails to open at Umaim resulted in the opening of CB at Nehu for 132 KV NEHU – Umiam.

As per DR analysis of Umiam I end of 132 KV Umiam Stage I- Umiam, R-Y-B (Ir-5.4 kA Iy-7 kA & Ib-7 kA) phase fault initiated at 13:37.01.866 Hrs. However, tripping observed due to operation of Highset OC relay in 235 msecs.

Root Cause of the tripping of **132 KV Umiam Stage 1- Umiam**: snapping of conductor.

Following action taken by MePTCL (As per Detailed Report):

1. On inspection it was found that there was mechanical blockage in the tripping mechanism at Umiam (for Umiam Stage I) which halted the CB from opening. (The problem was then rectified).
2. The Zone III-time delay of 132kV Mawphlang- Mawlai feeder has been reset to 500 ms and also the high set, DEF of 132 kV NEHU-Umiam feeder changed to 400 ms.

MePTCL is requested to update:

1. Reason for non-operation of DP (Main Protection) at Umiam Stage I for 132 KV Umiam Stage 1- Umiam line.

2. The status of review of ZIII time delay (451 msec) setting and its coordination at Mawphlang as per NER protection philosophy.
3. Rectification of DR parameter standardization at Umiam, Umiam I & Mawphlang for proper analysis purpose as per Grid code.

Sub-committee may deliberate

B.15 <u>Frequent Grid disturbances in Myndtu Leshka HEP of Meghalaya Power System:</u>

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

Similar trippings are also observed in the month of June'24 where simultaneous tripping of both the created Five number of Grid Disturbance at Leshka power station.

The details of tripping in June'24 are as follows:

Sl No	Event	GD/GI/ Near miss	Date & Time	Root cause	Generation Loss in MW
1	Leshka generating station	GD-I	**13-06-2024** 01:10	Lightning ,Y-E fault	123 MW
2		GD-I	**17-06-2024** 20:30	Lightning, R-Y-B-E fault	119 MW
3		GD-I	**17-06-2024** 23:37	Likely Lightning, R-B-E fault	42 MW
4		GD-I	**23-06-2024** 16:00	Vegetation	119 MW
5		GD-I	**26-06-2024** 12:01	Likely Lightning, R-B-E fault	84 MW

Following observations needs to be addressed which has already been intimated by NERLDC vide Letter No: NERLDC/SO-II/14/6366, dated 18/06/2024 and NERLDC/SO-II/14/6177.

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 (less time delay observed during GD in May'24).
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.
5. Installation of TLSA may be expedite to prevent tripping on account of lightning.

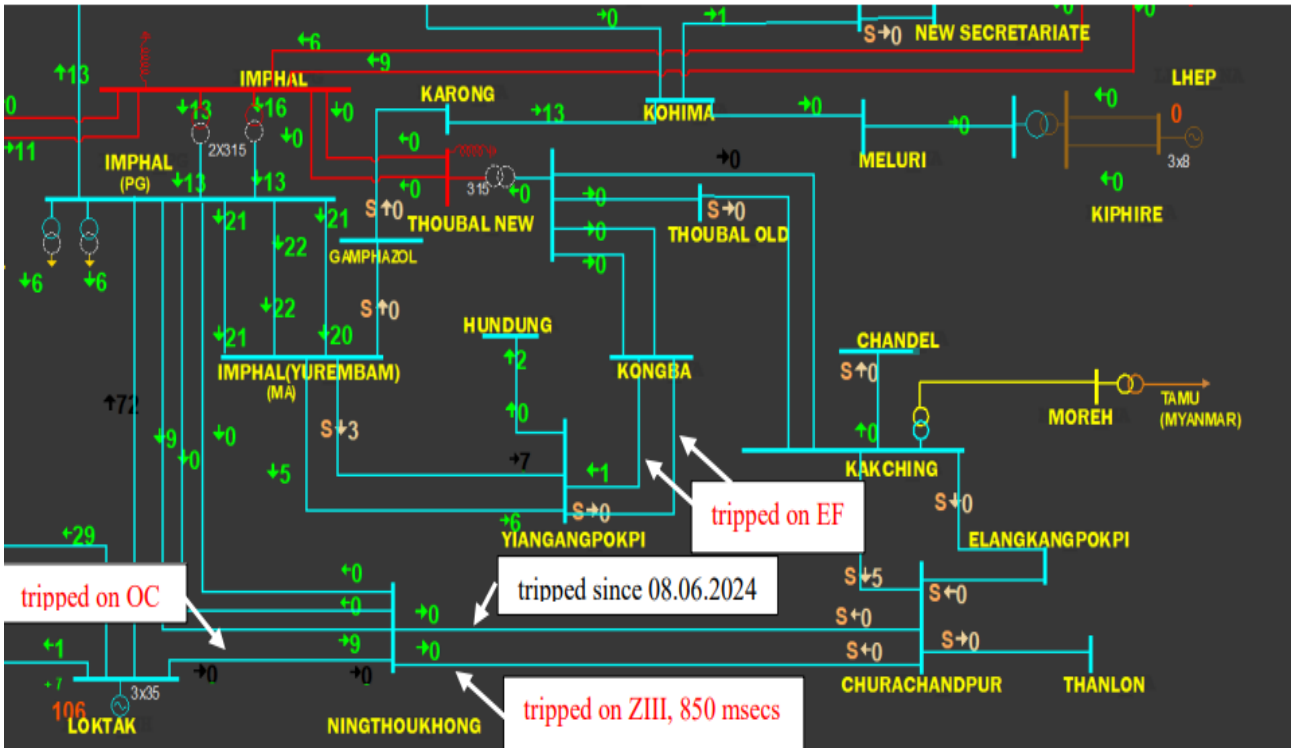
MePGCL/MePTCL may update the corrective measures taken on the above observations which has already highlighted in the last 68th PCCM.

Sub-committee may deliberate

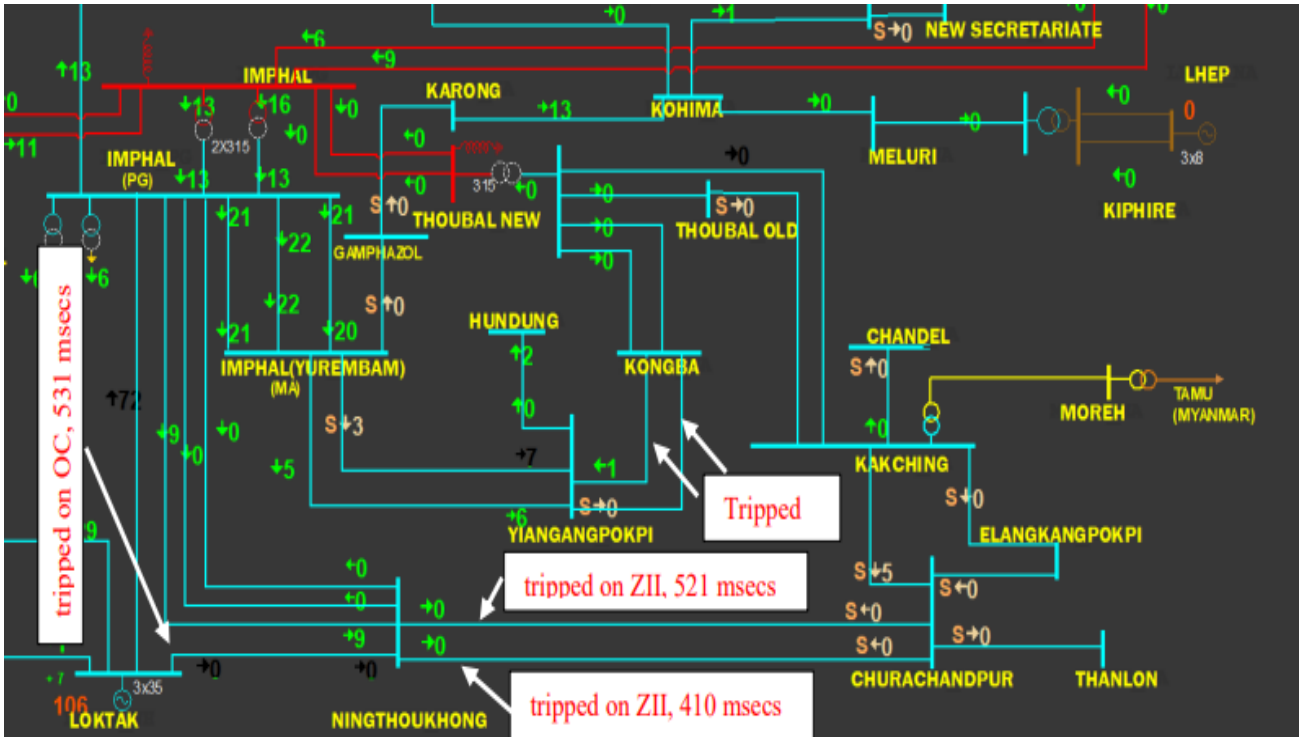
B.16 <u>Relay maloperation at Yiangangpokpi end of 132 kV Yiangangpokpi – Kongba 1&2 line of Manipur power system:</u>

Grid Disturbance occurred in the Manipur area during the month of June'24 due to the relay maloperation at Yiangangpokpi end.

Sl No	Event	GD/GI/ Near miss	Date & Time	Analysis
1	Churachandpur, Thanlon, Elangkangpokpi, Kakching, Chandel, Moreh, Thoubal old, Thoubal New and Kongba area of Manipur Power System and Tamu load of Myanmar	GD-I	12-06-2024 10:33	Fault in the downstream of Churachandpur cleared by simultaneous tripping at loktak in 840 msecs by Backup OC & Ning at 860 msecs by DP, ZIII. At the same time, 132 kV Yiangangpokpi -Kongba 1 &2 line tripped on Relay maloperation at Yianggangpokpi.



Sl No	Event	GD/GI/ Near miss	Date & Time	Analysis
2	Churachandpur Thanlon, Elangkangpokpi, Kakching, Chandel, Thoubal Old, New Thoubal and Kongba area of Manipur	GD-I	15-06-2024 06:11	Fault in the 132 kV Ningthoukhong - Churachandpur cleared by simultaneous tripping 132 kV Loktak- Ningthoukhong line at loktak in 531 msecs by Backup OC, Ningthoukhong ckt I at 521 msecs by DP,ZII & Ningthoukhong ckt II at 420 msecs by DP,ZII At the same time, 132 kV Yiangangpokpi -Kongba 1 &2 line tripped on Relay maloperation at Yianggangpokpi.



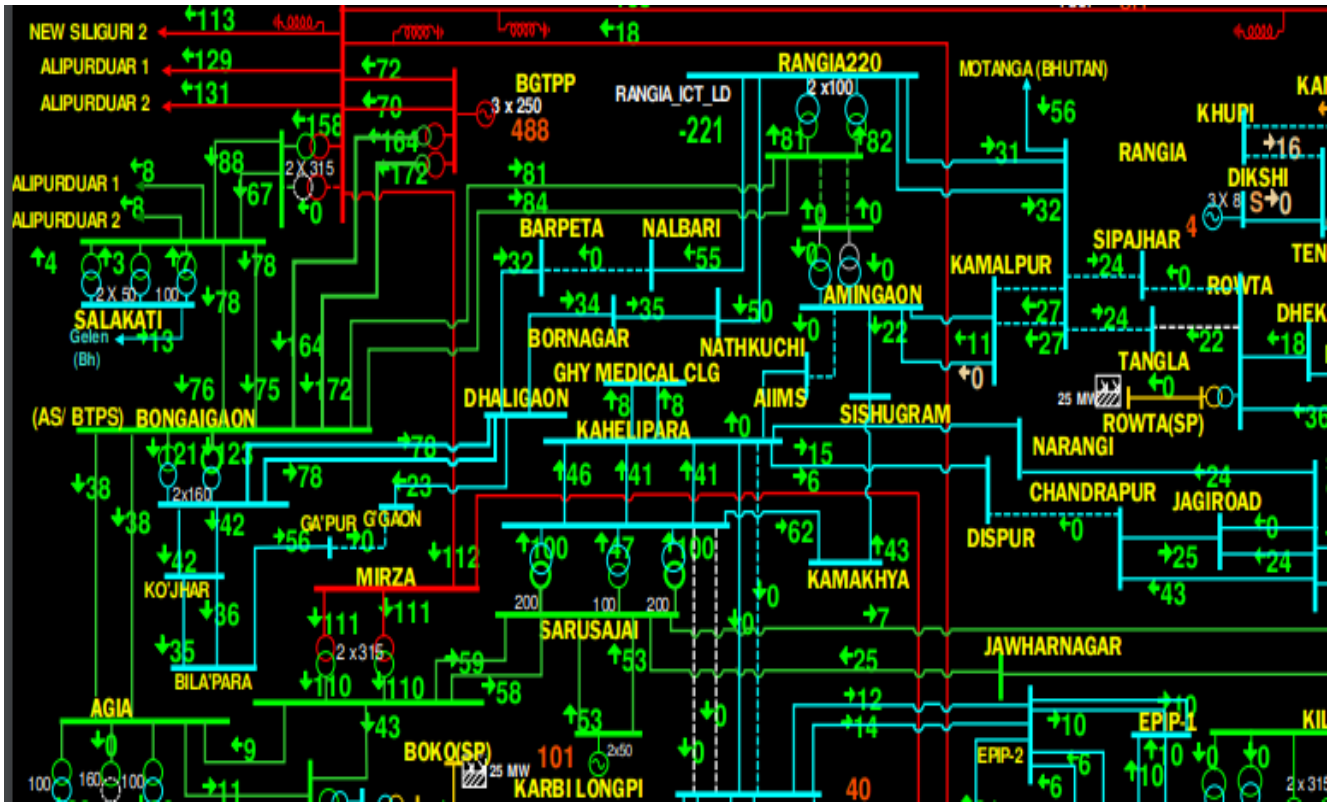
MSPCL is requested to update the root cause and remedial measures on relay setting coordination of the above tripping events.

Sub-committee may deliberate

B.17 <u>Bus Bar relay maloperation at BTPS (AEGCL) substation of Assam on 14-June-24:</u>

At 22:32 Hrs of 14-06-2024, all feeders connected to Bus 1 and Bus 2 of 220 kV BTPS (AEGCL) tripped due to maloperation of LBB/BB relay. Due to tripping of these elements, BTPS, Kokrajhar, Bilasipara, Gauripur, Gossaingaon, Dhaligaon, APM, Barpeta, Nalbari, Barnagar, Nathkuchi, Kamalpur, Sipajhar, BGR, Railway TSS areas of Assam Power System was isolated from NER Grid and collapsed due to no source available in these areas.

Due to above, Grid disturbance of category GD-2 with Load loss of 410 MW and Gen loss of 0.79 MW (Hayen Hydel- IPP) observed in the Assam power system, which is the matter of serious concern from operational point of view.



As per the analysis, there was no fault on the system at the time of event. As such tripping of all elements on LBB protection inferred to be UNWANTED. AEGCL is

requested to update the root cause of maloperation of LBB/Bus bar protection and its corrective actions taken to avoid repetition.

Sub-committee may deliberate

B.18 Grid Disturbance in Wokha area of Nagaland on 26-June-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 **09:31 Hrs of 26.06.2024**, 132 kV Sanis-Wokha line and 132 kV Wokha-Chiephebozou line tripped resulting in blackout of Wokha area of Nagaland.

As per DR&EL analysis, Y-B fault occurred in 132 kV Wokha-Chiehphebozou line cleared on ZI from Chiempobozou and ZII from Wokha end. At the same time, 132 kV Wokha-Sanis line tripped from Wokha end only on operation of B/which is unwanted.

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.

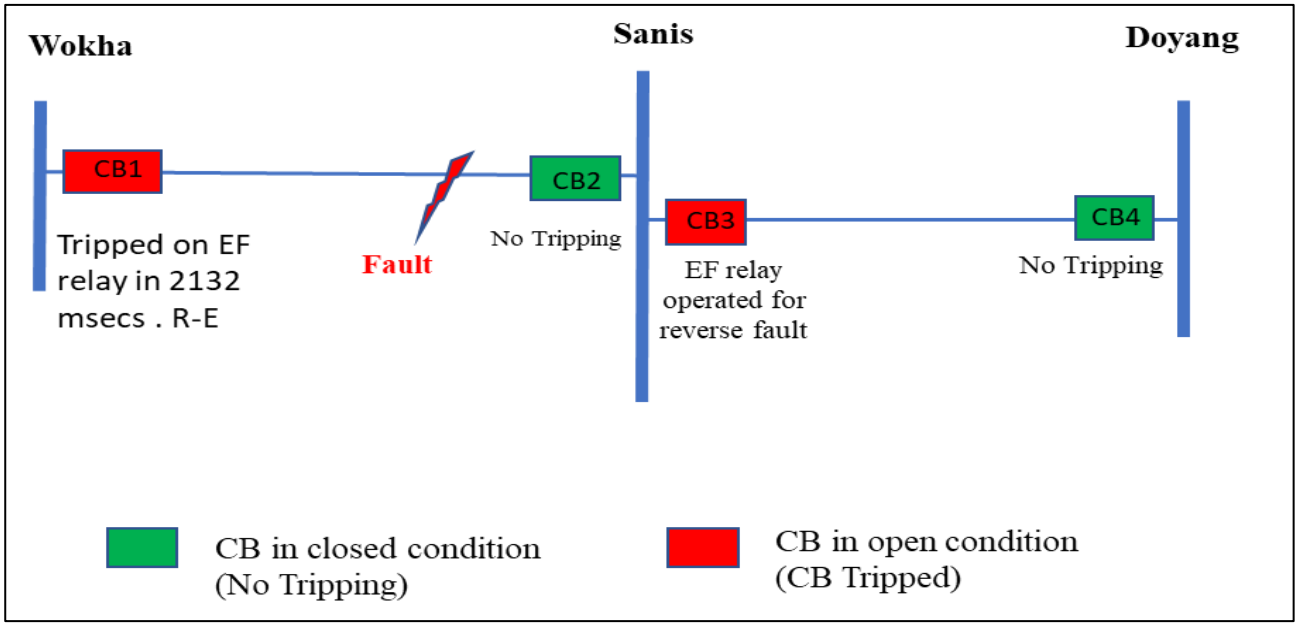
Similar type of event occurred 2 times in May'24.

DoP Nagaland may update the root cause and remedial measures taken at Wokha for Sanis Line.

B.19 Grid Disturbance in Sanis area of Nagaland on 27-June-24:

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

At **03:54 Hrs of 27.06.2024**, 132 kV Sanis-Wokha line and 132 kV Doyang-Sanis line tripped resulting in blackout of Sanis area of Nagaland.



DR of Wokha end of 132kV Sanis-Wokha Line, R-E fault of High resistive nature initiated at 03:54:13.213 Hrs and cleared by Backup EF relay in 2132 msecs at Wokha end. There was no tripping from Sanis end.

DR of Sanis end of 132kV Doyang-Sanis Line, Tripping observed on reverse fault. There was no tripping from Doyang end.

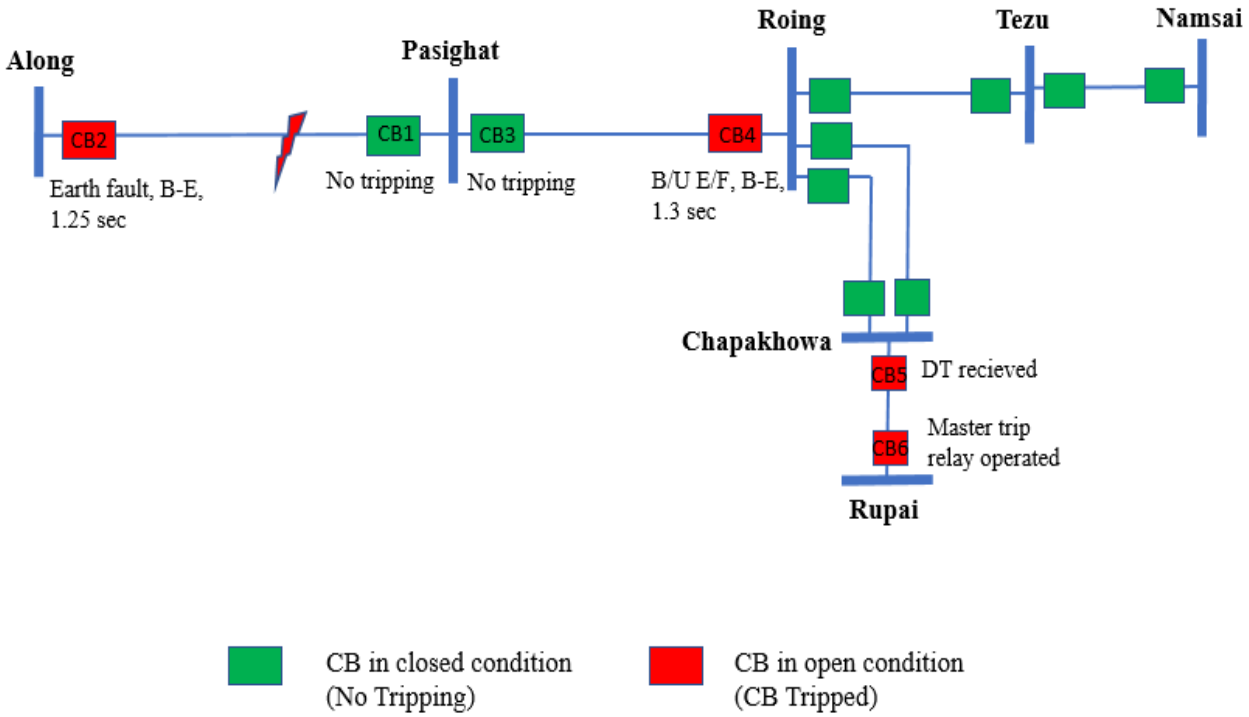
Observations:

1. Non operation of protection system at Sanis for 132 kV Wokha Line and
2. Mis-operation of B/U at Sanis for 132 kV Doyang Line.

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

B.20 <u>Grid disturbance in Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh and Chapakhowa area of Assam on 29.06.2024</u>

At 09:25 Hrs of 29.06.2024, 132 kV Along-Pasighat, 132 kV Roing-Pasighat & 132 kV Rupai-Chapakhowa lines tripped leading to blackout of Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh and Chapakhowa area of Assam. Load loss of 14 MW occurred.



As per DR analysis, resistive B-E fault (Ib-0.32 kA, In-0.26 kA) in 132 kV Along-Pasighat line initiated at 09:24:32.912 Hrs and cleared within 1.25 sec from Along end on operation of directional earth fault. There was no tripping from Pasighat end due to which fault was feeding from Roing end which was finally cleared by tripping of healthy 132 kV Roing-Pasighat line from Roing end (within 1.3 sec) on operation of backup E/F.

At the same time, 132 kV Rupai-Chapakhowa line also tripped with B/U EF operated at Rupai and DT received at Chapakhowa which seems to be unwanted.

Observations:

1. Protection system at Pasighat failed to isolate the fault in 132 kV Along-Pasighat line which is a matter of concern.
2. Unwanted tripping of 132 kV Rupai-Chapakhowa line on B/U protection.
3. FIR/DR/EL of tripping of 132 kV Rupai-Chapakhowa line not submitted by AEGCL due to which proper analysis could not be done.

DoP Arunachal Pradesh/AEGCL is requested to update –

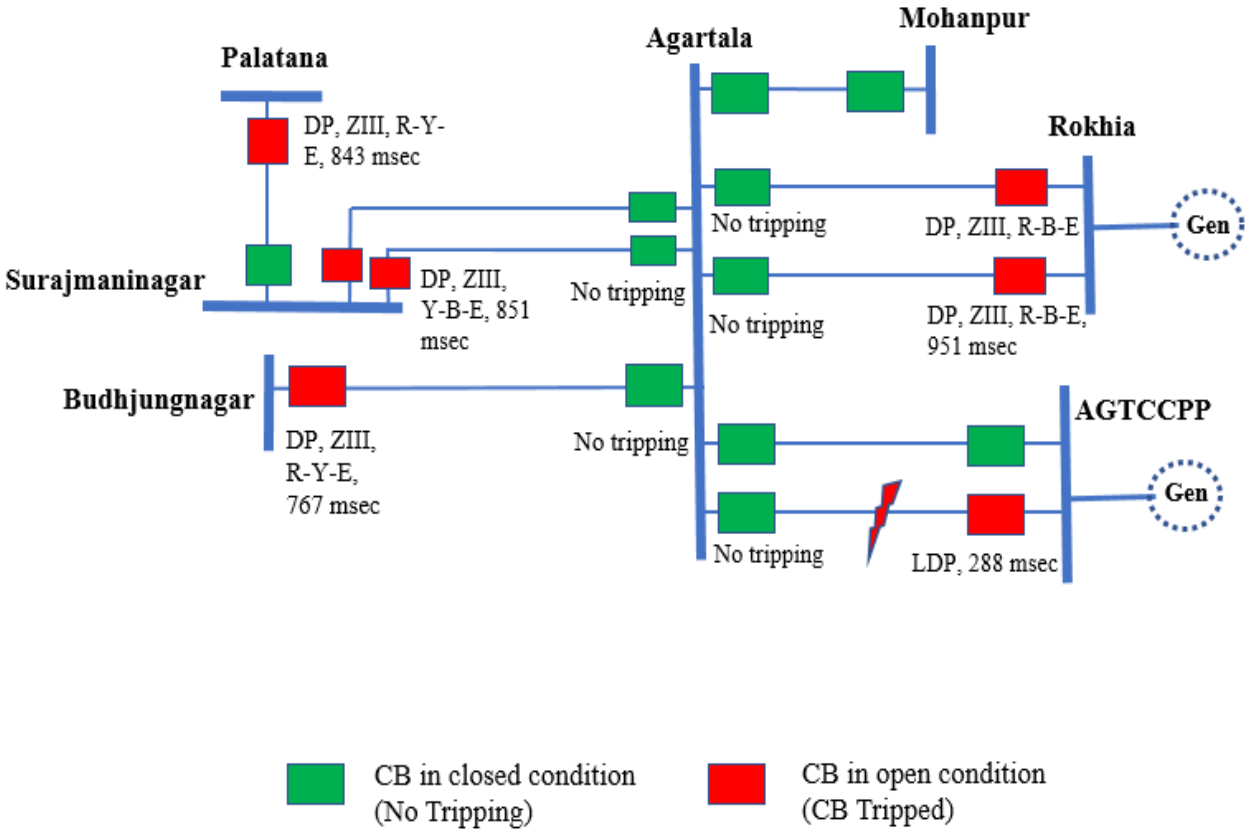
1. Root cause of non-isolation of fault by protection system at Pasighat for 132 kV Along Line and its remedial measures.
2. Reason of B/U operation at Rupai for 132 kV Chapakhowa Line and its setting coordination. .

Similar event occurred at 11:21 Hrs of 03rd July.

Sub-committee may deliberate

B.21 <u>Multiple tripping in Agartala area of Tripura Power system on 18.06.2024</u>

At 12:38 Hrs of 18.06.2024, multiple elements tripped in Agartala area of Tripura power system which is a matter of serious concern as it reduces security and reliability of NER grid.



As per DR analysis, double phase to earth fault is in 132 kV AGTCCPP-Agartala II line occurred at 12:34:47.0013 Hrs with Ir=Iy=7 kA, In=5 kA, and Vae=Vbe=18 kV, resulting in a Differential Trip. However, the **circuit breaker (CB) at Agartala did not open**, causing the fault to persist till 12:34:47.836 Hrs. Consequently, the fault was cleared from remote ends of other healthy lines emanating from Agartala on operation of ZIII from Rokhia, Agartala, Budhjungnagar and Palatana.

NERTS is requested to update the root cause/findings of the event and its corrective action taken.

OTPC may review the ZIII setting at Palatana for 132 kV Palatana-Surajmaninagar line.

Sub-committee may deliberate

B.22 Non-operation of SPS related to Bangladesh due to tripping of 132 kV Palatana-Surajmaninagar line

At 12:38 Hrs of 18.06.2024, 132 kV Palatana-Surajmaninagar Line tripped with R-Y-E fault and cleared within 840 msec on DP, ZIII. Fault was beyond the line which seems to be inside Tripura System.

As per DR data, as soon as the line tripped, **Bangladesh SPS-2** operation signal was high. However, no DT signal was sent resulting in no SPS operation at Surajmaninagar.

Similar event occurred at 14:20 Hrs of 18.05.2024 (Tripping of 132 kV Palatana-Surajmaninagar line due to maloperation of pole discrepancy relay)

As per IEGC-23, Clause 16(4): In case, the SPS fails to operate, the concerned User shall take corrective actions and submit a detailed report on the corrective actions taken to the concerned RPC within a fortnight.

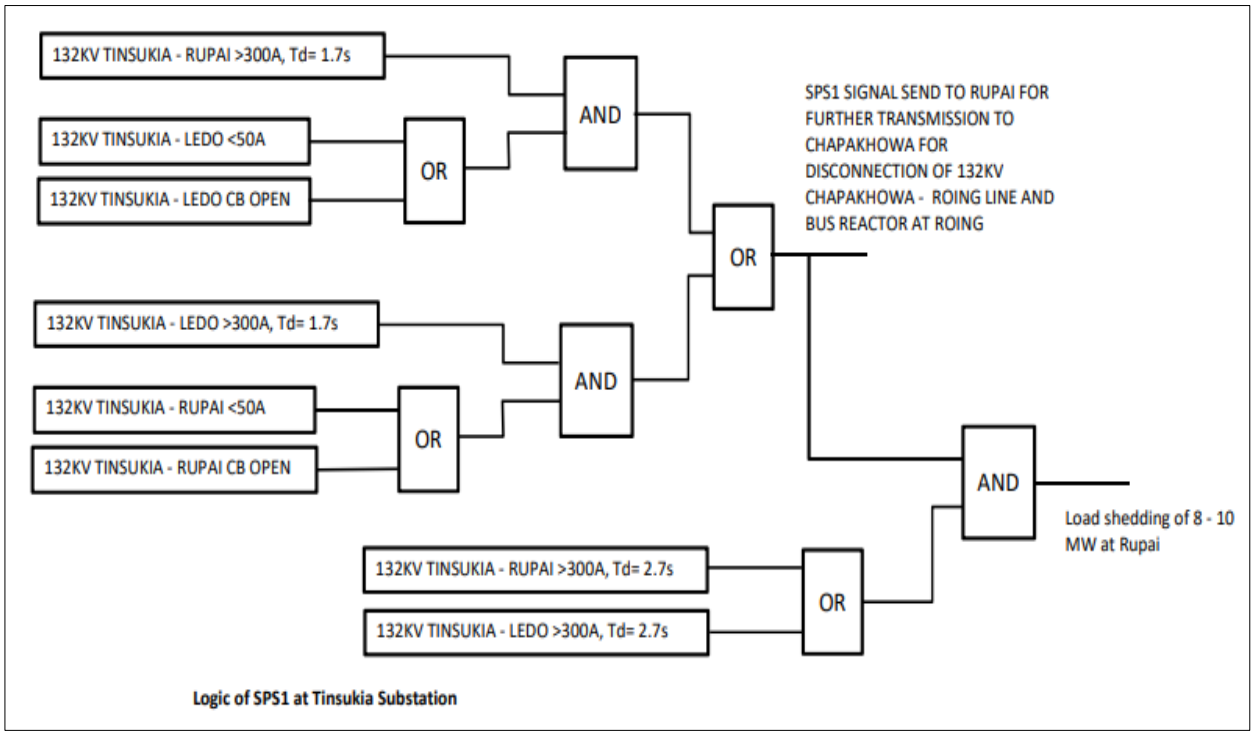
OTPC is requested to update the reason for non-transmission of DT signal and its corrective measures taken.

Sub-committee may deliberate

B.23 Requirement of SPS related to reliable power supply to Arunachal Pradesh from Assam through 132 kV Roing-Chapakhowa D/C lines

Scenario I:

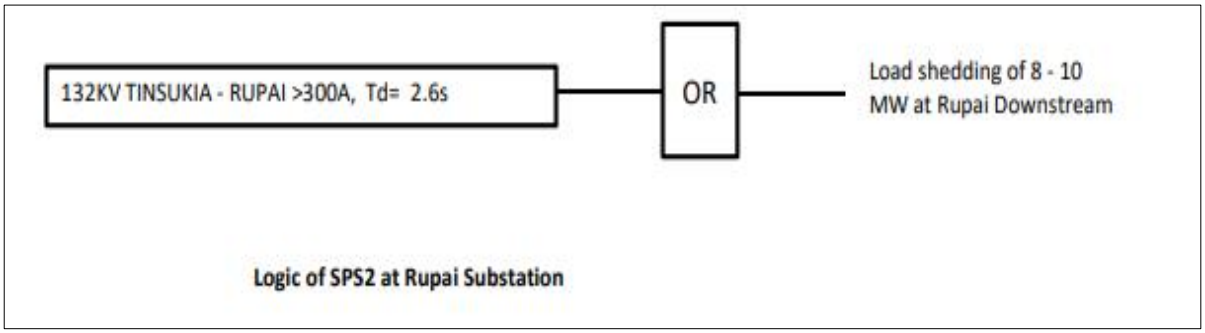
On tripping of either 132 kV Tinsukia-Ledo line Or 132 kV Tinsukia-Rupai line with current exceeding more than 300 A in 132 kV Tinsukia-Ledo Or 132 kV Tinsukia-Rupai line, 132 kV Roing-Chapakhowa D/C lines would open along with 20 MVAR bus reactors at the Roing substation. Also, 8-10 MW load will be disconnected from 132 kV Rupai or 132 kV Ledo substation.



Logic of SPS1 at Tinsukia Substation

Scenario II

On tripping of 132 kV Panyor-Ziro line, to mitigate the overloading of 132 kV Tinsukia-Rupai line, 8-10 MW load at 132 kV Rupai S/S will be shed when current in 132 kV Tinsukia-Rupai line crosses 300 A.



Logic of SPS2 at Rupai Substation

AEGCL is requested to update the implementation status of SPS logics.

For implementation of SPS logic at Chapakhowa for disconnection of 132 kV Roing-Chapakhowa D/C lines and BR at Roing, POWERGRID requested (via email) AEGCL to install one Aux relay with minimum 4 NO contacts (not self-resetting type) at Chapakhowa end for smooth implementation of the scheme.

Sub-committee may deliberate

B.24 Frequent tripping of Monarchak Generation during June'24:

On 16.06.2024 & 17.06.2024, Monarchak GT tripped on Rotor Earth Fault.

As per DR analysis, there were no fluctuations in voltage and current magnitudes during both tripping events. On 16th June'24, the recorded current and voltage at the time of the event were 2.3 kA (Ir=Iy=Ib) and 6.5 kV (Vre=Vye=Vbe), respectively. Similarly, on 17th June'24, the recorded values were 3.2 kA (Ir=Iy=Ib) and 6.5 kV (Vre=Vye=Vbe).

Therefore, tripping of Monarchak GT on operation of the Rotor E/F seems to be misoperation.

NEEPCO is requested to:

1. Update the root cause of such tripping and its remedial measures.
2. Review the Rotor E/F settings along with healthiness of Relay and check for any DC earth faults in the DC system.

Sub-committee may deliberate

B.25 <u>Mock testing of System Protection Scheme (SPS) related to tripping of Bus reactors at 400 kV P K Bari (ISTS) & 400 kV S M Nagar (ISTS) :</u>

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, IndiGrid is requested to provide the tentative dates for mock testing of SPS in July'24 related to tripping of Bus reactors at 400 kV P K Bari (ISTS) & 400 kV S M Nagar (ISTS).

Sub-committee may deliberate

C. FOLLOW–UP AGENDA ITEMS

C.2 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.

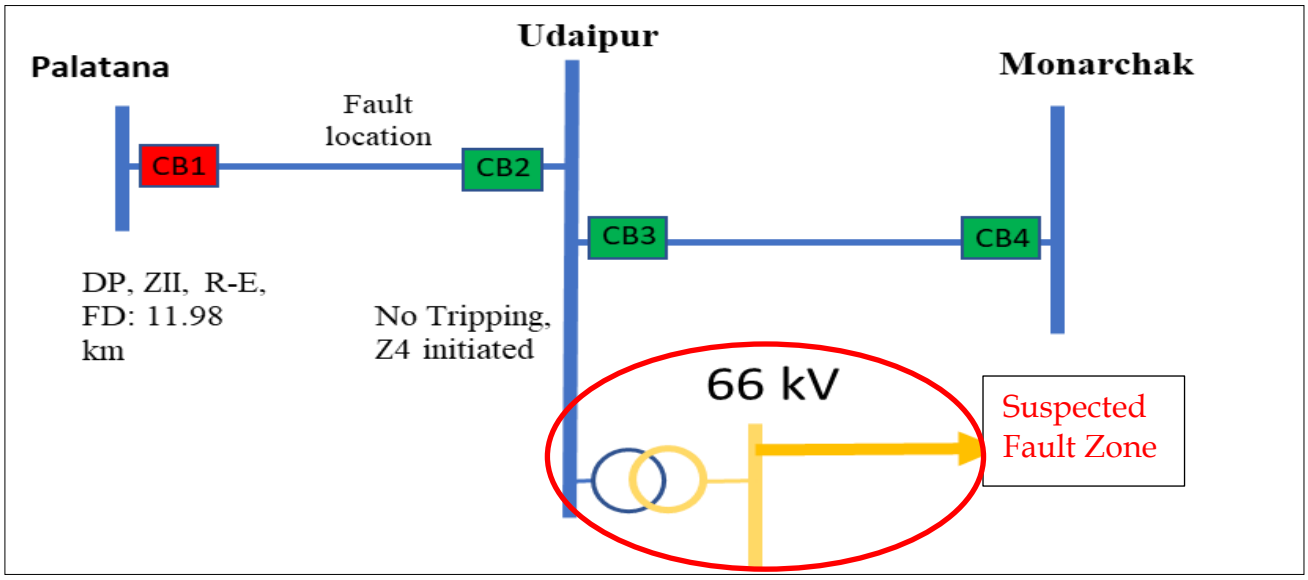
In 68th PCCM, MS, NERPC stated that the quarterly work progress report has already been sent to CERC.

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

Sub-committee may deliberate

C.3 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 and 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.

In 68th PCCM, TSECL updated that the details of downstream protection system would be sent shortly to NERPC and NERLDC. The forum strongly urged TSECL to take urgent actions to strengthen downstream protection system.

Tripura may 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 18 numbers of SPS under operation and 2 numbers of SPS under implementation as listed tabulated below

SPS mapping status as update by utilities in 68th PCCM

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

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

		Balipara 1 & 2 Line at Rangia.	be completed within 2 months
8	**Related to the tripping of Bus Reactors at 400 kV S M Nagar (ISTS)** - Tripping of both circuits of 400 kV SM Nagar-PK Bari D/C will trip 2 x 125 MVAR Bus Reactors at SM Nagar (ISTS) to prevent under voltage situation	-	(absent in the meeting)
9	**Related to the tripping of Bus Reactors at 400 kV P K Bari (ISTS)** - Tripping of both circuits of 400kV PK Bari (ISTS) – Silchar(PG) D/C will trip 2 x 125 MVAR Bus Reactors at P K Bari(ISTS) to prevent under voltage situation	-	(absent in the meeting)
10	**Related to the tripping of Bus Reactors at 400 kV Imphal (PG)** - Tripping of 400 kV New Kohima – Imphal D/C during outage of 400 kV Silchar – Imphal D/C will lead to the tripping of 125 MVAR and 80 MVAR Bus Reactor at Imphal(PG)	-	NERTS assured to do in upcoming Shutdown
11	**Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station** - Disconnection of One Unit of Panyor (135 MW) and One Unit of Pare (55 MW)	After restoration of 132 kV Panyor -Itanagar & 132 kV Panyor -Pare line (expected by 31st Mar'24)	Will be checked whether to disable or not. NEEPCO to implement by next month

12	**SPS related to outage of 220 kV Azara-Sarusajai DC/220 kV Misa-Samaguri DC** - **1) On tripping of 220 kV Azara-Sarusajai D/C:** 140-150 MW load disconnection is to be done at 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.	Template prepared by the OEM. Mapping to be done at Sarusajai first, then to other substaions. AEGCL informed that it will be done by July'24
13	**SPS related to the outage of 132 kV Panyor HEP-Ziro Line** - Tripping of 132 kV Panyor-Ziro will cause disconnection of 33kV Load at Ziro	Commissioning of 132 kV Khupi - Along Link/220 kV AGBPS-Namsai D/C	1 month
14	Related to outage of any one circuit of 132 kV Dimapur(PG)- Dimapur(NA) D/C	Reconductoring of 132 kV Dimapur(PG)-Dimapur(NA) D/C	Done
15	Related to outage of any one circuit of 220 kV Balipara-Sonabil D/C	Reconductoring of 220 kV Balipara-Sonabil D/C lines with higher ampacity and Utilisation of 2 X 160 MVA ICTs at Balipara	AEGCL to implement within 2 months, by Sept'24
16	**Related to Outage of 400 kV Palatana – Surajmani Nagar line (charged at 132 kV)** - Tripping of 400 kV SM Nagar – Comilla D/C (charged at 132 kV) during outage of 400 kV Palatana – SM Nagar (TSECL) line (charged at 132 kV)	Upgradation of 132 kV Surajmaninagar (TSECL) to 400 kV	1 month

17	**Related to Outage of both 400/132 kV, 2x125 MVA ICTs at Palatana** - Entire load disconnection of South Comilla by way of tripping of 132kV SM Nagar-South Comilla D/C	Upgradation of 132 kV Surajmaninagar (TSECL) to 400 kV	1 month
18	Related to the outage of any one circuit of the 132 KV Khliehriat (PG)-Khliehriat D/C line	Reconductoring of 132 KV Khliehriat (PG)-Khliehriat D/C line	No DI points available. Additional cards required, will take around 2 months

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

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

Utilities may further update

C.5 Status on remedial measures actions on non-operation of auto recloser in Important Grid Elements for transient faults occurred in last few months:

As updated in 68th PCCM

Sl No	Element Name	Time	Relay End1	Relay End2	A/R not Operated	Remarks from Utility (67th PCCM)

1	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
2	220 kV Mariani (AEGCL) - Samaguri Line	29-11-2023 15:10	DP, ZI, B-E	DP, ZI, B-E, FD: 16 km	Samaguri	This month, all the lines at Marini will be done

SL No	Element Name	Tripping Date and Time	Relay Details_A	Relay Details_B	AR not Operated	Remarks from utility (67th PCCM)
3	220 kV Byrnihat - Misa 2 Line	23-02-2024 04:39	DP,ZI, Y-E, FD: 59.54 Km	DP,ZI, Y-E, FD: 81.019km (AR Successful)	Byrnihat	OEM to arrive next week to resolve the issue.

SL No	Element Name	Tripping Date and Time	Restoration Date and Time	Relay _A	Relay _B	Auto-Recloser not Operated	Remarks as per 67th PCCM
4	132 kV Gohpur - North Lakhimpur 1	26-03-2024 05:55	26-03-2024 06:12	DP, ZI, R-E, FD: 4.1km	DP, ZI, R-E	Both ends	AR implemented at N. Lakhimpur. And AR to be configured at Gohpur by this month
5	132 kV Tenga - Khupi	26-03-2024 07:35	26-03-2024 12:25	DP, ZI, R-B-E, FD: 30km	DP, ZI, R-B-E, FD:4.9 km	Khupi	B/U relay disabled, to be replaced this month

6	220 kV Mawngap - New Shillong 1	26-03-2024 12:22	26-03-2024 19:31	DP, ZI, Y-E, FD: 27.82 Km	DP, ZI, Y-E	Mawngap	BB maloperation issue
7	132 kV Dimapur - Doyang 2	29-03-2024 13:10	29-03-2024 13:31	DP, Z1, R-Y, FD: 72.6km	DP, Z1, R-Y	Doyang	CB procurement underway. By March'25

S. No	**Element Name**	**Tripping Date and Time**	**RELAY_A**	**RELAY_B**	**Auto-Recloser not Operated**	**Remarks from Utility**
8	220 kV AGBPP - Mariani (PG) Line	01-05-2024 03:12	Z1, B-N, 24.97 Kms	DP, ZI, B-E, FD: 131.4 KM, Operated Sucessfully	AGBPP	Checking by OEM to be done.
9	132 kV Jiribam - Loktak 2 Line	02-05-2024 03:39	DP, ZI, R-E, FD: 25.74 km	Earth fault, overcurrent, Z-1, 49.31 km (DR not opening)	Jiribam	Tripping in reclaim time
10	132 kV Badarpur - Karimganj Line	05-05-2024 13:48	DP, ZII, Y-E, FD:27.25 KM, Carrier Aided tripping & AR	DP, ZI, Y-E, FD: 0.2km	Karimganj	Testing to be done. Shutdown required for checking AR block issue

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
			Operated Successfully			
11	132 kV Aizawl - Tipaimukh Line	05-05-2024 21:54	DP,ZI,B-E,FD:72.73KM	Details awaited	Aizawl	AR was blocked due to multiple carrier fail alarm, DC supply issue at Tipaimukh end. Manipur to check the DC supply.
12	400 kV Azara - Bongaigaon Line	18-05-2024 06:49	DP, ZII, B-E, FD: 151.3km, Carrier Aided Tripping	BG, 9.9kA, 2.294, Z1	Not Operated at Azara (Spring not charged alarm high)	AEGCL informed that single phase fault in Main 1 relay of Azara. However, due to configuration issue Y-B fault in Main 2 relay due to which AR was blocked. The issue will be rectified shortly

S. No	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
13	132 kV AGTCCPP - PK Bari (TSECL) 2 Line	19-05-2024 14:58	DP,ZII, Y-E, Carrier Aided Tripping	DP,ZI,Y-E	both ends	TSEL to check the issue

Utilities may further update

C.6 132 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 68th PCCM, TSECL updated that the shutdown of the PK Bari-Dharmanagar line was not planned yet. Work will be done in upcoming shutdown.

TSECL may further update

C.7 PLCC issues follow up:

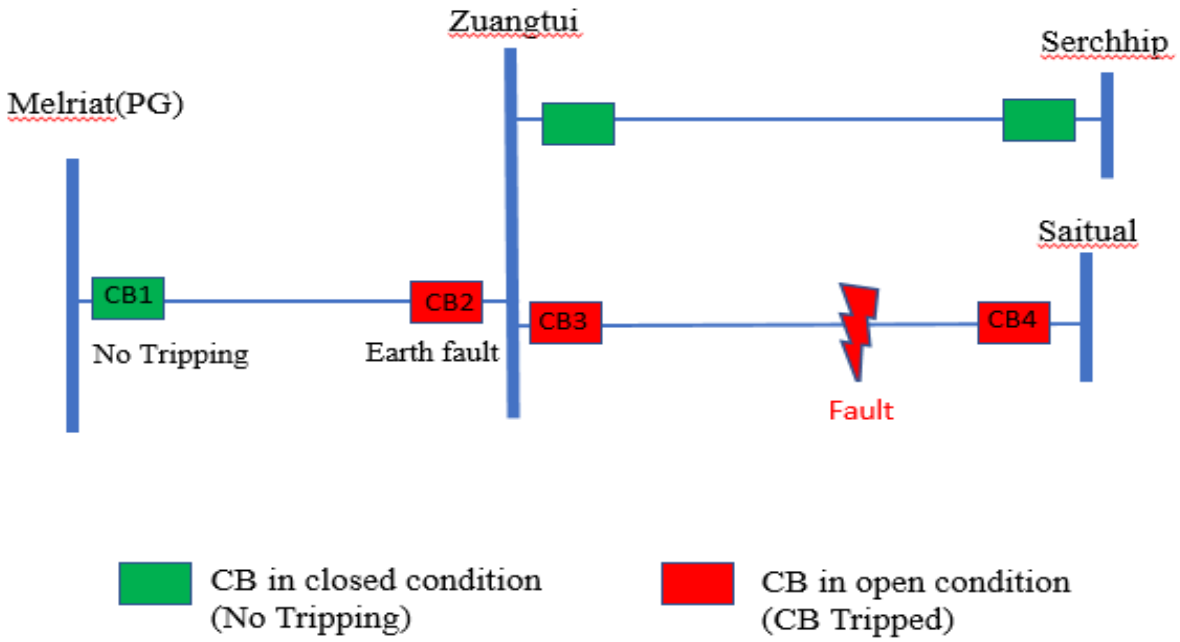
Update as provided by utilities in 68th PCCM

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

Utilities may further update

B.26 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.



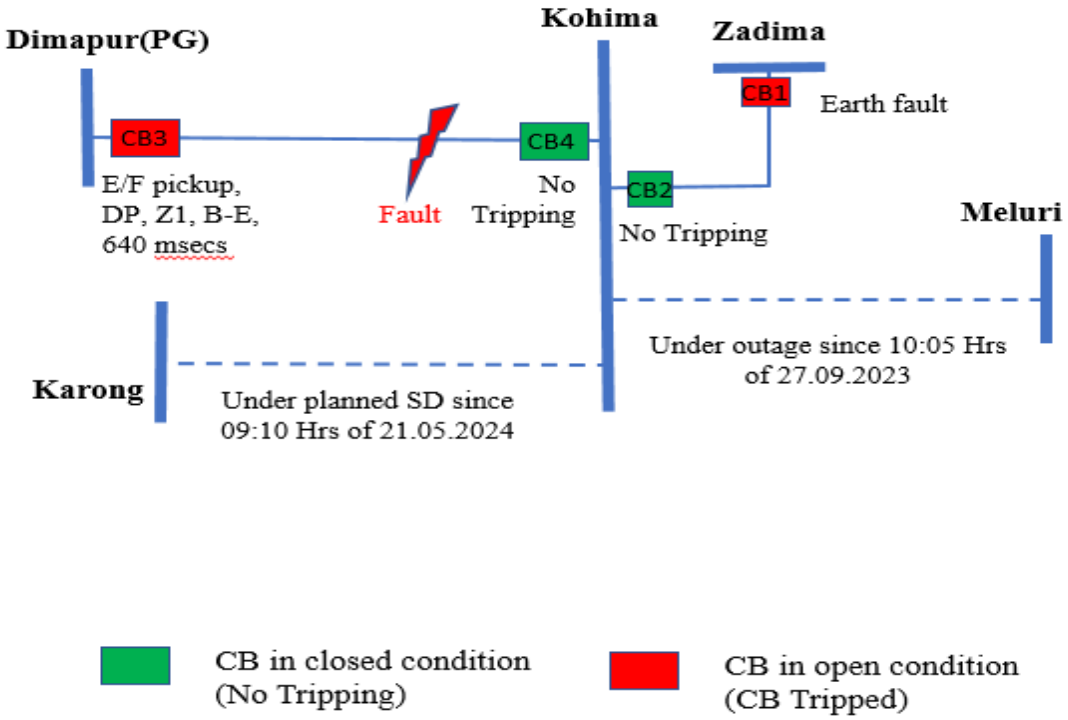
As per FIR submitted by P&ED Mizoram, fault was in 132 kV Zuangtui-Saitual line. Tripping of 132 kV Melriat-Zuangtui line from Zuangtui end for reverse fault in 132 kV Zuangtui-Saitual line is unwanted resulting in blackout of Zuangtui and radially connected substations of Mizoram.

In 68th PCCM, Mizoram stated that fault in the Zuagntui-Saitual was due to stormy weather condition at the time. Further, he stated that the directionality and setting of backup relay at Zuangtui for 132 kV Melriat(PG)-Zuangtui Line would be checked shortly.

Mizoram may update

C.8 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.

In 68th PCCM, DoP Nagland updated that the fault occurred in 132 kV Dimapur-Kohima line due to vegetation issue. Also, Fourm requested DoP Nagaland to review the Backup E/F setting at Zadima for 132 kV Kohima-Zadima line and coordinate with ZIII as per NERPC protection philosophy.

DoP Nagaland may update

C.9 Frequent Grid disturbances in Myndtu 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 informed in 68th PCCM, that a meeting will be held with State protection Committee regarding implementation of Auto recloser in 132 kV Leshka-Khliehriat D/C lines.

MePGCL may update

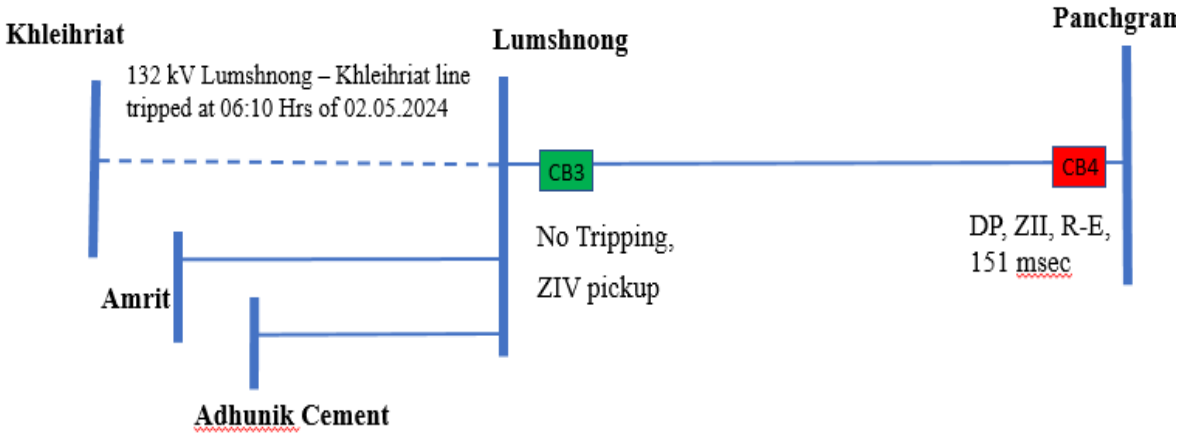
C.10 Grid Disturbance in Lumshnong area of Meghalaya on 30-05-2024:

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

Event 1:

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

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



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

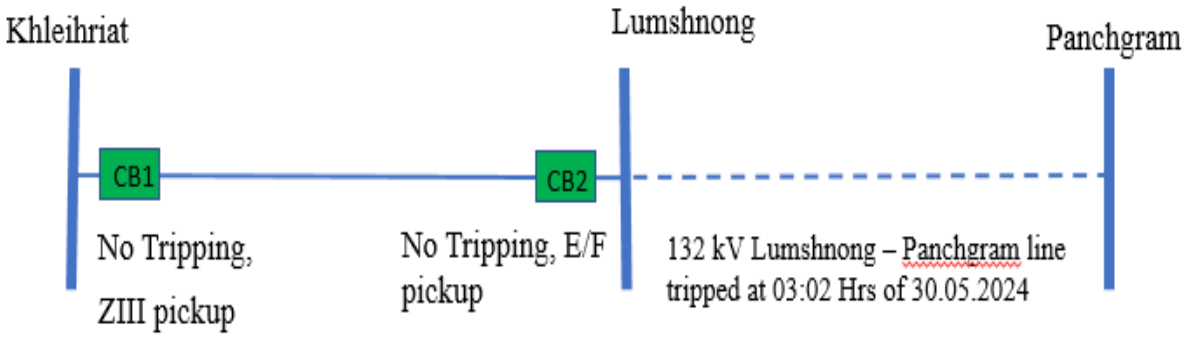
As per DR analysis, R-E fault (Ir-1.8 kA, In-1.4 kA) initiated at 07:00:11.821 Hrs in 132 kV Lumshnong-Panchgram line cleared within 151 msec on operation of DP, ZII from Panchgram end only. ZIV start at Lumshnong end which inferred that fault is in reverse direction.

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

Event 2:

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

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



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

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

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

MePTCL is requested to –

i) Share the root cause and remedial measures taken.

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

Deliberation of the 68th PCCM

Event 1

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

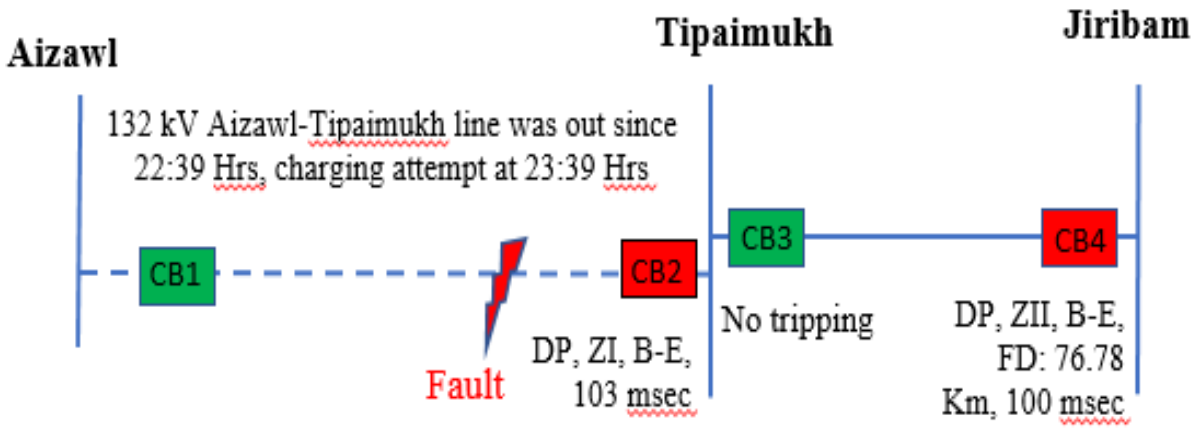
Event 2

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

MePTCL may update

C.11 Grid Disturbance in Tipaimukh area of Manipur on 17-April-24:

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



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

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

Following observations:

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

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

MSPCL is requested to rectify the following issues-

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

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

In 68th PCCM, MSPCL updated, regarding PLCC in 132kV Jiribam- Tipaimukh line, that PLCC card replacement is to be done this month.

After detailed deliberation the forum requested –

1. MSPCL to test the distance relay and conduct timing test of CB at Tipaimukh end for Aizawl line and address the issue of delayed clearance on Z1.

2. NERTS to increase the Zone II time delay to 150 msec for 132 kV Jiribam-Tipaimukh line considering Max fault clearance time of 132 kV level within 160 msec as per CEA.

MSPCL and NERTS may update

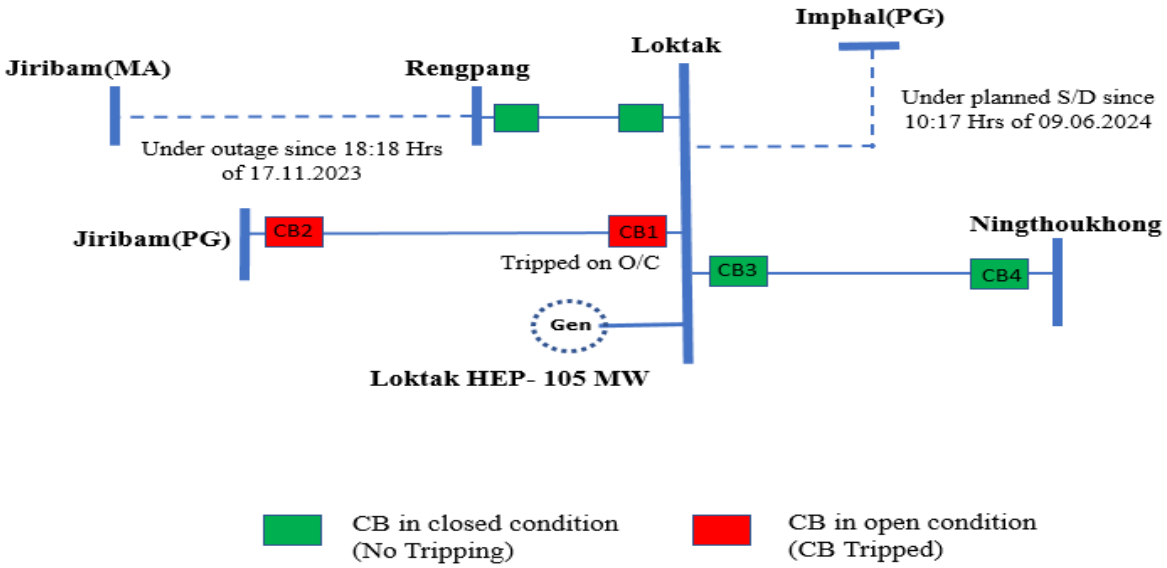
C.12 Grid Disturbance in Loktak HEP on 09-06-2024:

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

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

Event 1:

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

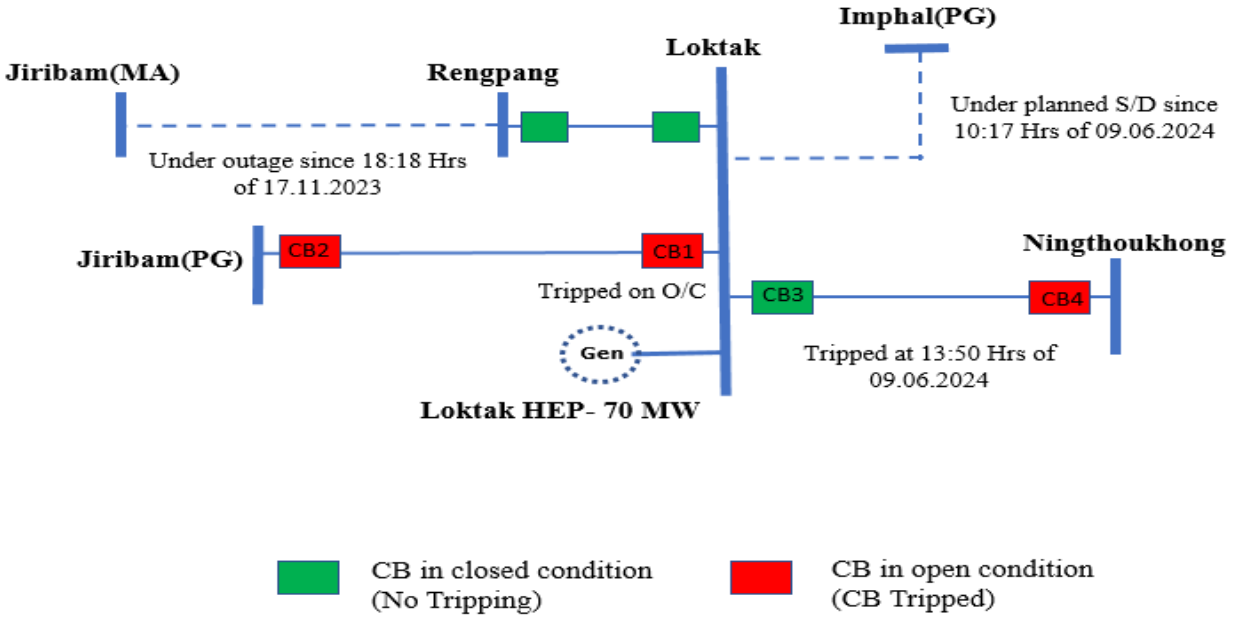


At 10:32 Hrs of 09-06-2024, 132 kV Loktak-Jiribam(PG) line tripped from Loktak end on Overcurrent due to which 132 kV Loktak-Ningthoukhong line got overloaded and subsequently all three units of Loktak tripped leading to generation loss of 105 MW.

Event 2:

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

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



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

Following Observations shared by NERLDC on 9th June24:

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

Loktak may update the root cause and measures

In 68th PCCM, NERLDC highlighted the Nuisance tripping of 132 kV Loktak-Jiribam Line from Loktak with current of 210-230 A, which led to GD at Loktak twice. Loktak informed that Overcurrent setting of 132 kV Loktak-Jiribam line will be checked and rectified shortly.

NHPC 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 68th PCCM

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

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

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

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

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

Utilities may further update

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

Status as updated in the 68th PCCM:

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

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

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

Utilities may further update

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Annexure C.1

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

MePTCL

STATUS OF LINE DIFFERENTIAL PROTECTION PROJECT UNDER PSDF

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