Agenda
for
76th PCCM

Govt. of India

Ministry of Power

North Eastern Regional Power Committee

Shillong

North Eastern Regional Power Committee

Agenda for

76th Protection Coordination Sub-Committee Meeting

Date: 27/02/2025 (Thursday)

Time: 11:00 hrs.

Venue: NERPC conference Hall, Shillong

A. CONFIRMATION OF MINUTES

1. CONFIRMATION OF MINUTES OF THE 75th PROTECTION SUB-COMMITTEE MEETING OF NERPC.

Minutes of the 75th PCC Meeting held on 16th January, 2025 (Thursday) at NERLDC Conference Hall, Guwahati was circulated vide letter No.: NERPC/SE (O)/PCC/2024/3978-4019 dated 28th January 2025.

No comments were received from the constituents

Sub-committee may confirm the minutes of the 75th 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

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. A google spreadsheet has been circulated to the constituents by NERLDC to provide the schedule of protection audit as well as date of last audit. The forum requested the constituents to update the spreadsheet.

In 75th PCCM, following points were discussed -

Utilities updated as follow-

Sr No	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 by December'24	Financial approval for the audit pending. Schedule to be decided afterwards. Requested NERPC to conduct the audit meanwhile. MS NERPC stated that NERPC will conduct audit of only critical substations. Further it was decided that audit of Pashighat and Along substations may be conducted in Feb'25	NA
2.	Assam	Done for 61 SS	submitted	NERPC conducted audit of 6 SS in Jan to June'24. Other SS done in 2021-22. Only Karimganj left. Forum advised to start identifying external agencies to carry out the third party audit for next phase of audit.	submitted
3.	Manipur	Done for all SS	Submitted	8 SS to be done, Schedule to be decided, subject to law and Order situation. Audit of Yurembam ss and Ningthounkong ss	NA

				may be done by NERPC team soon.	
4.	Meghalaya	Internal audit of 132kV Nangalbibra, 132kV Rongkhon, 132kV Mendipathar, 132kV Ampati and 132kV Umiam SS has been completed between July'24 to October '24. For rest 14 SS, will try to complete by Mar'25.	Report to be shared shortly	Audit of 6 SS (Killing, EPIP I, EPIP II, NEHU, Mawlai an Mawphlang) conducted by NERPC on 26th and 27th August'24. For other substations, seek offer from CBIP, yet to receive offer. 3rd party audit of Lumshnong may be done by NERPC by first week of Feb'25.	Report to be shared by end of January'24
5.	Mizoram	Done for all SS	Report shared	Audit of Luangmual, Zuangtui and Kolasib planned in August'24. List of external agencies awaited. Searching for parties to conduct audit. Audit of Kolasib, Aizawl, Melriat (PG) and Luangmual to be done in Feb'25 by NERPC	NA
6.	Nagaland	Done for four SS	Report shared	Audit of 5 ss to be done in Jan/Feb'25 by NERPC.	NA

				For rest, to be planned later.	
7.	Tripura	11 done, rest by Feb'25. For 66kV SS - audit by Feb'25.	To be shared shortly	Requested NERPC to conduct audit of critical substations. MS NERPC stated that the audit may be planned for March'25	NA
8.	Powergrid (NERTS)	POWERGRID has completed & submitted internal protection reports for 20 nos. of substations. 2 more substations being done in Jan'25	Shared	External audit done for Misa & Salakati s/s by NERPC. For 2 substations, audit is being planned to be done by government agencies like CBIP and CPRI.	
9.	NTL	Utilities to update status			
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 Kopili and Turial done.	Shared for Pare and Turial and AGBPP.	To be planned. Waiting for the list of agencies from NPC. Forum advised that till the list is finalized	

		Kathalguri (AGBPP) also done. RC Nagar and Kathalguri to be planned	NERPC highlighted the AGBPP format is incomplete and asked NEEPCO to complete the format.	NEEPCO may consider reputed auditing agencies (including CBIP and CPRI) for conducting the external audits.	
13.	OTPC (Palatana)	Done		Done	shared
14.	NTPC (BgTPP)	Done	shared	Done (by CPRI)	Report to be shared in three weeks
15.	NHPC (Loktak)	By Jan'25		To be done after R&M of the plant	
16.	APGCL	Utilities to update status			
17.	TPGCL				
18.	MEPGCL	Audit of Umiam stg I and Stg II was done Nov'24, rest under planning	To be shared	External audits of all generating stations were done in 2021. For next cycle of audit, planning being done.	

Sub-committee may deliberate

B.2 <u>Analysis and Discussion on Grid Disturbances which occurred in NER grid in January'25 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 January 2024 based on the draft report prepared by NERLDC (**annexure B.2**).

Sub-committee may deliberate

NERLDC Agenda

B.3 Status of submission of FIR, DR & EL outputs for the Grid Events for the month of January'2025:

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 01-01- 2025 to 31-01-2025 as on **17-02-2025** is given below:

Owner Name	Total No of FIR/DR/EL/TR to be submitted	FIR			DR			EL		
		Total Furnished in 24hrs %	Total Furnished after 24hrs %	Total furnished %	Total Furnished in 24hrs %	Total Furnished after 24hrs %	Total furnished %	Total Furnished in 24hrs %	Total Furnished after 24hrs %	Total furnished %
AEGCL	1	0.00%	100.00%	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%
DoP, Arunachal Pradesh	13	46.15%	53.85%	100.00%	53.85%	46.15%	100.00%	46.15%	53.85%	100.00%
DoP, Nagaland	1	0.00%	100.00%	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%
MePGCL	6	0.00%	100.00%	100.00%	100.00%	0.00%	100.00%	0.00%	0.00%	**0.00%**
MePTCL	9	33.33%	44.44%	**77.78%**	0.00%	77.78%	**77.78%**	22.22%	55.56%	**77.78%**
MSPCL	5	0.00%	100.00%	100.00%	60.00%	0.00%	**60.00%**	80.00%	0.00%	**80.00%**
MUML	1	0.00%	100.00%	100.00%	100.00%	0.00%	100.00%	0.00%	100.00%	100.00%
NEEPCO	14	42.86%	57.14%	100.00%	50.00%	50.00%	100.00%	50.00%	50.00%	100.00%
NHPC	1	0.00%	100.00%	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%
NTPC	3	0.00%	0.00%	**0.00%**	33.33%	0.00%	**33.33%**	0.00%	0.00%	0.00%
OTPC	4	50.00%	50.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%	100.00%
POWERGRID	18	33.33%	66.67%	100.00%	55.56%	44.44%	100.00%	44.44%	50.00%	94.44%

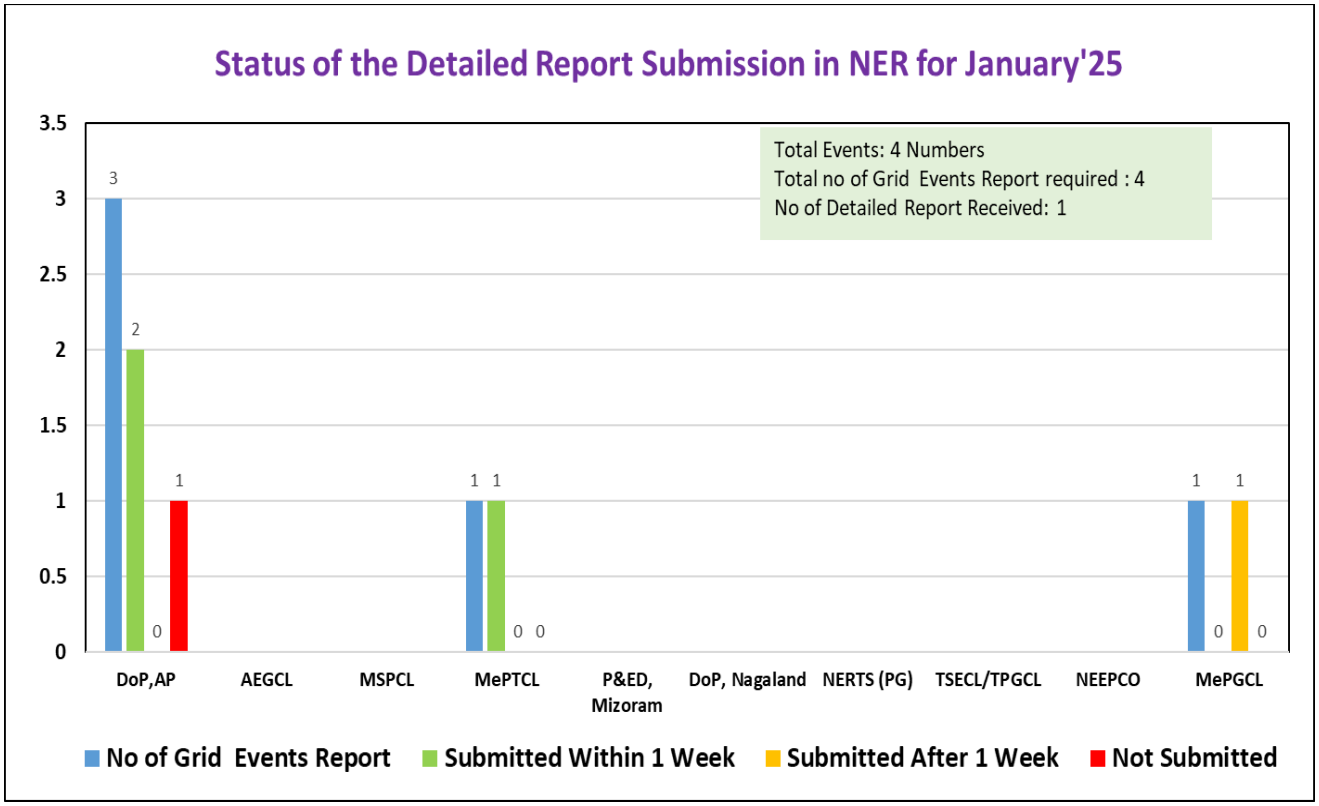
Concerned Utilities are requested to upload Disturbance Recorder (DR), Event Logger (EL) outputs for grid events along with a First Information Report (FIR) in Tripping Monitoring Portal (https://tripping.nerldc.in/Default.aspx) for analysis purpose. In light of the cybersecurity measures implemented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

Sub-committee may deliberate

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 **January, 2025** as on **17-02-2025** is shown below:



DoP AP, have not submitted the detailed report of grid disturbance for GD in Napit and Niglok areas of AP Power System.

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-2023.

Sub-committee may deliberate

B.5 <u>Non-operation of auto recloser in Important Grid Elements for transient faults in January 2025:</u>

Sl. No.	Element Name	Tripping Date and Time	RELAY_A	RELAY_B	Auto-Recloser not Operated	Remarks from Utility
1	132 kV Dimapur - Doyang 1 Line	03-01-2025 09:48:00	DP, ZI, B-E, FD: 2.758Kms, A/R Successful	DP, ZI, B-E, Carrier received, A/R Not Operated	Doyang (NEEPCO)	
2	132 kV Bokajan - Dimapur Line	05-01-2025 09:44:00	DP, ZI, B-E, FD: 11.3km, A/R Not Operated	DP, ZI, B-E FD:9.276 kms, A/R Successful	Bokajan (Assam)	
3	132 kV Nirjuli-North Lakhimpur 1 Line	13-01-2025 09:05:00	DP, ZI, Y-B, FD: 14.82 kms, A/R Operated Successfully	DP, ZI, Y-B, FD: 27.7 Kms, A/R Not Operated	North Lakhimpur (MUML)	
4	132 kV Daporijo - Ziro Line	13-01-2025 15:00:00	DP, ZI, B-E, AR Not Operated	DP, ZI, B-E, FD: 677.24Kms, A/R Operated Successfully	Daporijo(DoP AP)	

Utilities may update

B.6 <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 12th of every month for previous month indices, which shall be reviewed by the RPC.

As on 17.02.2025, **NETC, OTPC, MUML, NBTL, NTL, POWERGRID, AEGCL, DoP Nagaland, MePTCL, MePGCL, TGBPS(NEEPCO), Kopili(NEEPCO) and DoP**

Arunachal Pradesh has submitted protection performance indices for the month of January'25.

SN	Name of Transmission Licencee	D= (Nc/ Nc+Nf)	S= (Nc/ Nc+Nu)	R= (Nc/ Nc+Ni)	Remarks
1	NETC	-	-	-	No tripping during Jan'25
2	OTPC	1	1	1	
3	POWERGRID	1	1	1	
4	MUML	0.5	1	0.5	As per SOPR, failed Nf at North Lakhimpur end for tripping of 132 KV North Lakhimpur Nirjuli Line on 13.01.2025 *NERLDC Comments:* Ph-Ph fault. A/R not operated. DR window is ***only 500 msec*** which is not in line with the DR standardization parameters report submitted by FOLD Working Group 3. MUML to update the reason and rectify the same.
5	NBTL	-	-	-	No tripping during Jan'25
6	NTL	-	-	-	No tripping during Jan'25
7	Monarchak, TGBPS, NEEPCO	1	1	1	
8	Kopili(NEEPCO)	1	1	1	
9	AEGCL	1	1	1	
10	DoP Arunachal Pradesh	0.929	1	0.929	Tripping of 132 kV Along-Basar line from Basar end on ZI. Along end CB failed to open despite

					issuance of trip command. The LBB initiation command was also triggered at Along, however the Pasighat line breaker did not open. Similar incident occurred on 08-12-2024
11	DoP Nagaland	1	1	1	
12	MePTCL	1	0.57	0.57	As per SOPR, S and R are less than unity due to (1) Tripping of 220k V Mawphlang-New Shillong line-2 on 15.01.2025 due to spurious DT signal, the matter was informed to NERPSIP for rectification. (2) Tripping of 160MVA ICT-I at Mawphlang on 19.01.2025 due to defective PRV relay. The relay has been replaced and the ICT was charged w.e.f 24 January 2025. (3) Mal-operation which has resulted in tripping of 315MVA ICT 3 at 400kV Killing S/s on 23.01.2025. The ICT was charged immediately and normalized.
13	MePGCL	1	1	1	

Protection Performance Indices not received from transmission utilities such as **KMTL, MSPCL, P&ED Mizoram and TSECL.** Also, not received from Generating companies such as **APGCL, TPGCL, NTPC, NHPC and NEEPCO (AGBPP, AGTCCPP, Kameng, Ranganadi, Pare, Doyang, Kopili stg 2)**.

Therefore, all Users are requested to furnish and ensure performance indices (Dependability-D, Security-S, Reliability-R) with regards to the tripping of elements to NERPC & NERLDC positively by **12th** of every month for previous month indices in compliance with IEGC.

Sub-committee may deliberate

B.7 Bus bar protection at Surajmaninagar(TSECL):

As per the monthly progress report submitted by Tripura (Petition No-535/MP/2020) for the month of December, 2024, the progress regarding implementation of Bus bar Protection at SM Nagar (TSCEL) is updated as: Will be implemented after getting fund from PSDF.

TSECL may update the latest status of the same and mention the tentative date of completion as the issue is long pending.

Sub-committee may deliberate

B.8 Spurious Tripping of Bus Coupler CB and loss of supply in 132 kV Loktak - Rengpang Line:

At 05:52 Hrs of 14.02.2025, 132 kV Bus Coupler at Loktak CB tripped. As a result, there was blackout at Rengpang S/S (load loss: 1 MW) which is the cause of concern. As per relay indications, tripping occurred due to maloperation of the bus-coupler breaker. Blackout of 132 kV Loktak - Rengpang Line due to tripping of 132 kV Bus Coupler at Loktak inferred to be a Uniform feeder segregation issue. The tripping of the bus coupler should not impact the Loktak-Rengpang line, given the double main scheme in place.

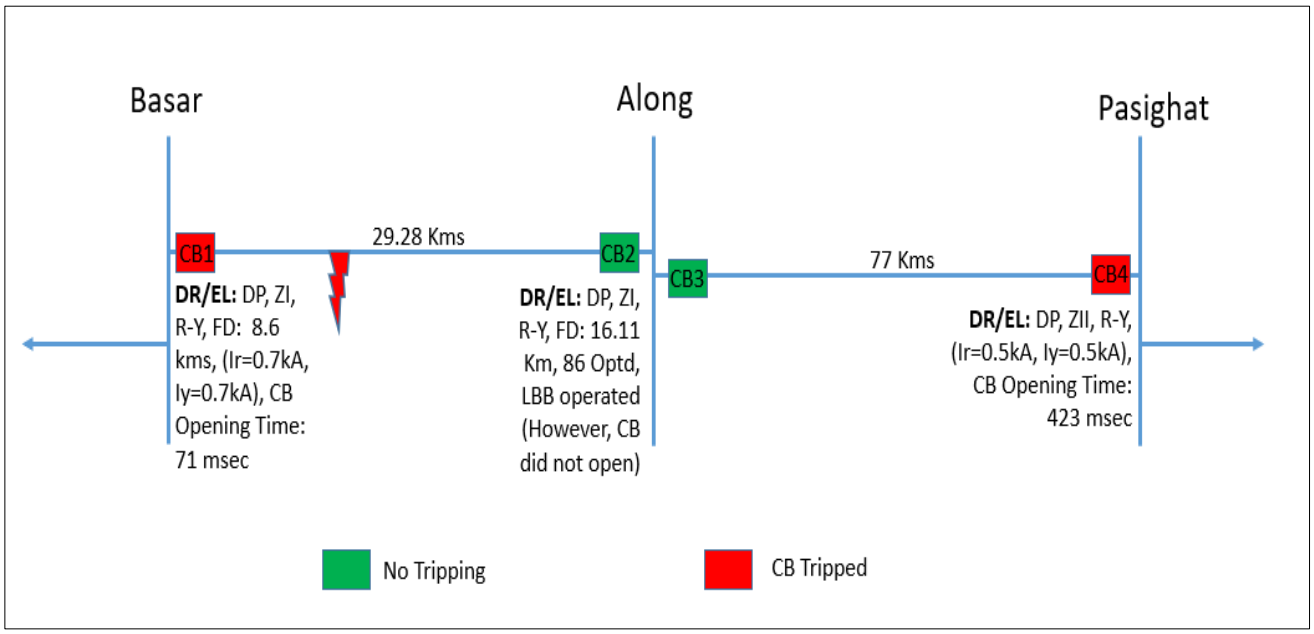
NHPC may update the root cause as well as the remedial measures taken on Bus coupler CB and ensure uniform segregation of feeders in both buses to ensure reliable grid operation all time.

Sub-committee may deliberate

B.9 Grid Disturbance in Along and Pasighat areas of Arunachal Pradesh on 23-01-2025 and 05-02-2025:

Along and Pasighat areas of Arunachal Pradesh Power System were connected with rest of NER Grid through 132 kV Along-Basar & 132 kV Along-Pasighat lines.

At 18:36 Hrs of 23-01-2025, 132 kV Along-Pasighat and 132kV Along-Basar line tripped resulting in grid disturbance in Along area of Arunachal Pradesh. Load loss of 5 MW occurred.



As per DR analysis, R-Y solid fault (Ir-537 A, Iy-535 A) in 132 kV Along-Basar line initiated at 18:36:46.864 Hrs, which was cleared within 80 msec from Basar end on operation of DP, ZI. ZI started from Along end and trip command issued. However, CB at Along fails to open. Non-isolation of fault from Along, resulted in clearing of fault from remote end by tripping of 132 kV Pasighat-Along on DP, ZII, R-Y, within 420 msec.

Observations:

- Non-opening of CB at Along for 132 kV Along-Basar line despite issuance of ZI trip command. DoP AP to immediately resolve the Pneumatic type Circuit Breaker issue of Basar feeder at Along Substation, which is reported to be in poor working condition.
- DoP AP to implement multiphase along with 1-Ph A/R for continuity of power supply in case of transient multiphase fault.
- At 18:36:47.170 Hrs, after 300 msec of initiation of fault, LBB initiation command was triggered at Along end. However, Pasighat line breaker did not open. LBB time delay setting and its wiring circuit to all feeders at Along to be reviewed and remedial measures to be taken immediately

- SOE not recorded for tripping of any of the elements. The same needs to be checked by DoP AP/SLDC AP/POWERGRID for ensuring IEGC compliance.
- Time drift of 1 min observed at Pasighat end for 132 kV Along-Pasighat line which need to be sync with GPS.

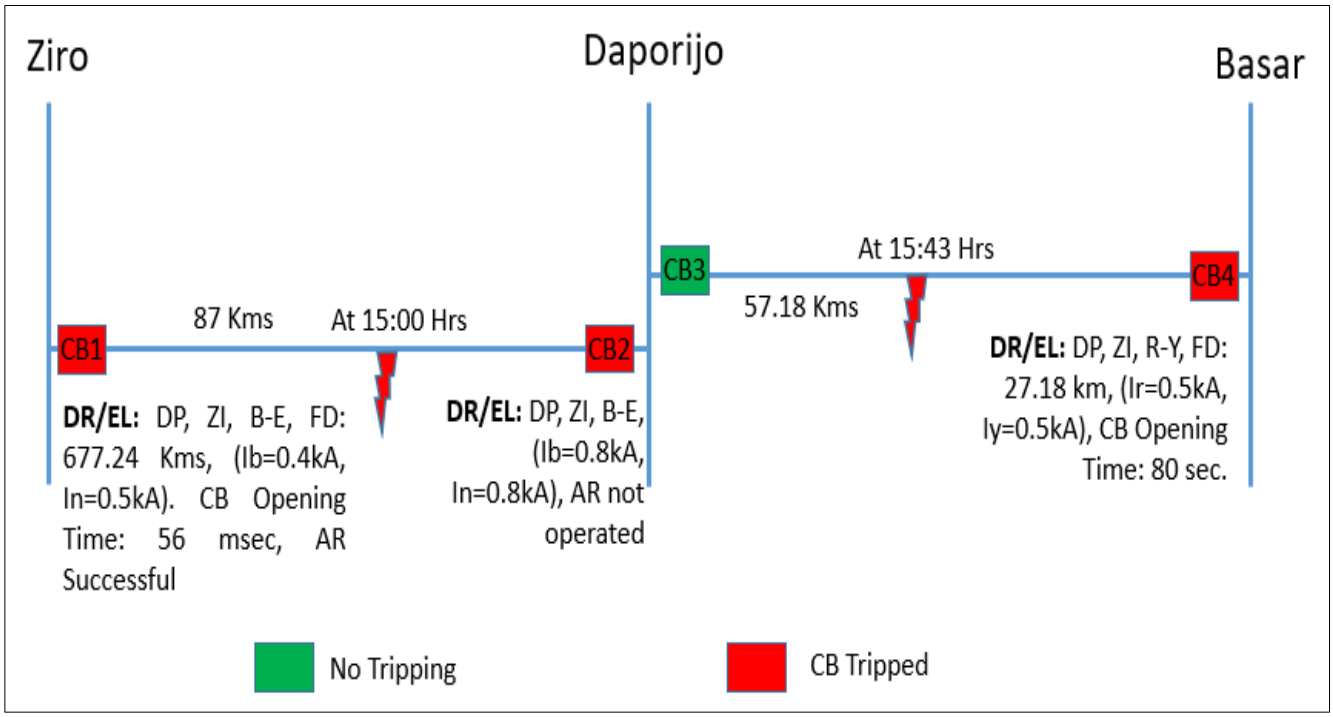
It is to be mentioned that similar kind of disturbance observed on **08th Dec'24** and it was already highlighted in the last 75 PCC meeting. In the meeting DoP Ar. Pradesh apprised that trip command as well as LBB was triggered at Along end, but CB did not operate as it is old and pneumatic. Also, CB3 did not operate on LBB as wiring has not been done yet with LBB. Also, the forum had advised DoP Ar. Pradesh to replace the pneumatic CBs with sprig charged ones at the earliest.

Again at 11:15 Hrs on **5th February'25,** same events occurred due to the non-clearance of fault at Basar for the 132 kV Along Line.
Despite the recommendations provided by the 75 PCC minutes and NERLDC Protection Team vide ref mail 24/01/25 and letter Ref No NERLDC/SO/24-25/14/7384, dated 07/02/25, no corrective actions have been implemented, leading to repeated disturbances caused by the same known issue.

DoP Arunachal may provide an update on the actions taken in response to the aforementioned observations.

B.10 Grid disturbance in Daporijo area of Arunachal Pradesh Power System on 13-01-2025:

Daporijo area of Arunachal Pradesh Power System was connected with rest of NER Grid through 132 kV Daporijo-Basar line. 132 kV Ziro – Daporijo line tripped at 15:00 Hrs of 13- 01-2025. At 15:45 Hrs of 13-01-2025, 132 kV Daporijo-Basar line tripped resulting in GD in Daporijo area of Arunachal Pradesh Power System. Load loss of 3 MW occurred.



As per DR analysis, B-phase to E fault occurred in 132 kV Ziro-Daporijo Line at 15:00:13.363 Hrs and fault was cleared from Ziro on Z-1 within 57 msec, A/R successfully operated and Daporijo on Z-1 within 56 msec, A/R not attempted.

At 15:43:18.118 Hrs, another R-Y fault occurred in 132 kV Basar-Daporijo line and fault was cleared from Basar on Z-1 operation within 80 msec. There was no tripping from Daporijo as radially connected.

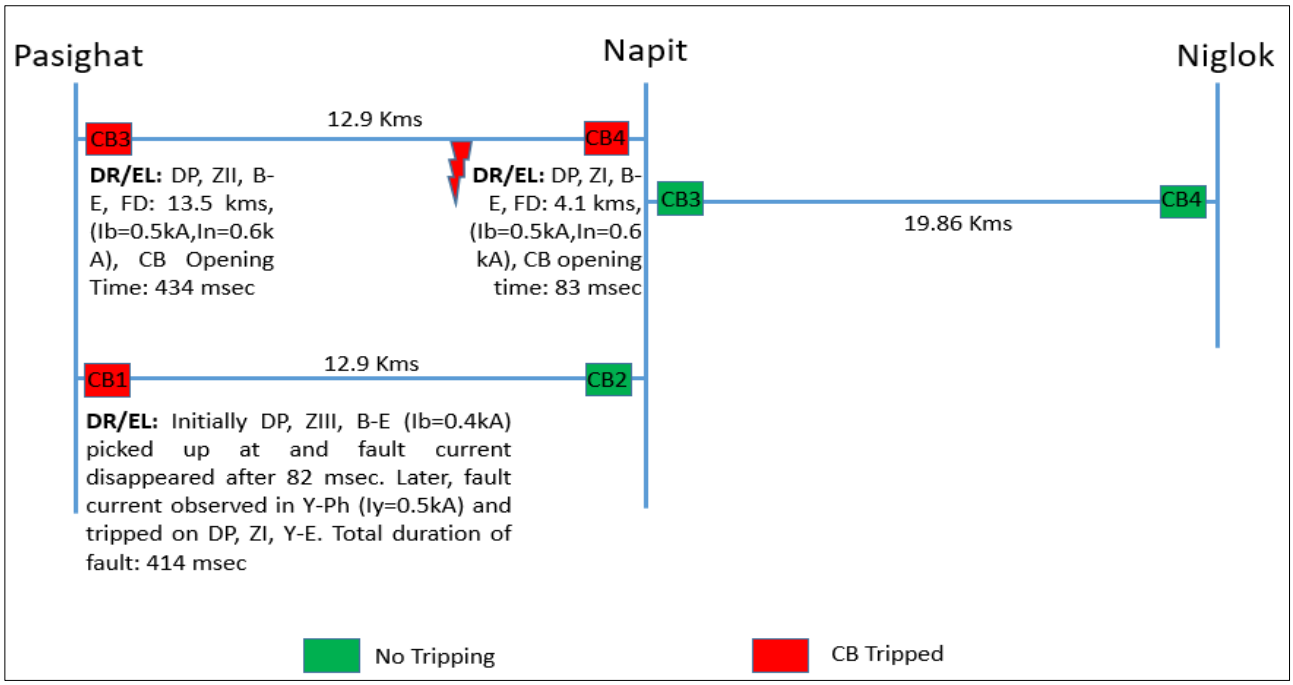
Protection issues observed

- Reason for non-operation of A/R at Daporijo for Ziro line needs to be checked by DoP, AP and corrective actions may be updated.
- Fault location of 677.24 Kms from Ziro seems erroneous. The same need to be reviewed by POWERGRID by simulating the same fault with test kit.
- The fault on 132 kV Basar-Daporijo line is of a Ph-Ph nature, there is likely clearance issue that required immediate attention. DoP AP is requested to investigate and update the root cause of tripping at earliest.
- Huge time drift of 2 mins in DR observed from Basar. Healthiness of GPS may be checked and time to be adjusted as per grid code.
- SOE not recorded for tripping of all the elements. The same needs immediate attention from DoP AP team for ensuring IEGC compliance.

DoP AP and PGCIL may update the actions taken on the above mentioned issues.

B.11 Grid disturbance in Napit area of Arunachal Pradesh Power System on 07-01-2025:

Napit and Niglok area of Arunachal Pradesh Power System were connected with rest of NER Grid via 132 kV Pasighat- Napit D/C Lines. At 22:25 Hrs of 07-01-2025, 132 kV Pasighat-Napit D/C Lines tripped leading to blackout in Napit and Niglok areas of Arunachal Pradesh Power System. Load loss of 5 MW occurred.



As per DR analysis, B-phase to E fault occurred in 132 kV Pasighat- Napit 1 Line at 22:25:35.347 Hrs and fault was cleared from Napit on ZI within 57 msec and Pasighat on ZII within 434 msec. At the same time, for 132 kV Pasighat- Napit 2 Line, ZIII, B-E (Ib=0.4kA) started initially and fault current disappeared within 83 msec. Later fault current observed in Y-Ph (Iy=0.5kA) tripped on ZI from Pasighat end and fault cleared in 414 msec.

Protection issues observed:

- No carrier aided tripping observed in 132 kV Pasighat- Napit 1 Line at Pasighat end
- Tripping of 132 kV Pasighat- Napit 2 Line on ZI from Pasighat end seems unwanted. Zones setting need to be reviewed at Pasighat for Napit-2 line.
- SOE not recorded for tripping of 132 kV Pasighat-Napit D/C Lines which is the non-compliance of Grid code.

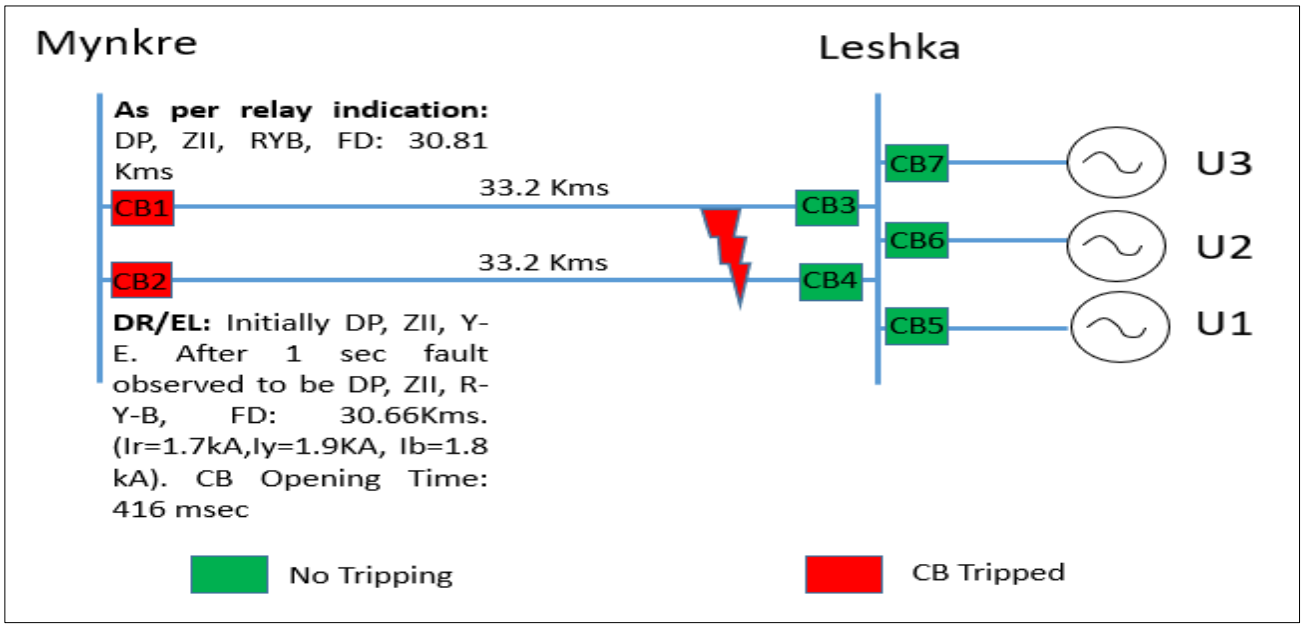
- Huge time drift of 10 mins and 6 mins observed in submitted DR from Pasighat ends for both lines

  DoP AP may update the actual root cause of the event and remedial measures that has been taken against above mentioned issues.

Sub-committee may deliberate

B.12 <u>Grid disturbance in Leshka HEP of Meghalaya Power System on 20-01-2025:</u>

Leshka HEP of Meghalaya Power System was connected with rest of NER Grid via 132kV Mynkre-Myntdu Leshka D/C lines. At 09:16 Hrs of 20-01-2025, 132kV Mynkre-Myntdu Leshka D/C lines tripped, resulting in grid disturbance due to loss of evacuation path of Leshka HEP area of Meghalaya Power System. At the same time Umiam stg1 Unit 1, Umiam stg1 Unit 2 and Umiam stg1 Unit 4 also tripped which seems to be nuisance tripping. Generation loss of 62 MW observed.



As per detailed report submitted by MePGCL, the 132kV link line from the 11kV/132kV Transformer Bay to the Switchyard passes through forest. Fault may have occurred in this line which is protected by O/C E/F relay.

Protection/Operational issues observed:

- Root cause of the tripping and the exact location of the fault may be shared by MePTCL and MePGCL
- Mynkre end DR channels for 132KV-Myntdu Leshka-Mynkre 1 Line are not standardised due to which proper analysis could not be done. The DR duration to be enhanced to 3 sec with Pre fault time of 500 msec and post fault of 2.5 sec. Also, voltage channel to be configured in analogue channel of DR in line with DR Parameter Standardisation report of FOLD Working Group-3. Action- MePTCL
- A huge time drift of 4 mins observed from Mynkre ends DR for 132KV-Myntdu Leshka-Mynkre D/C Lines. GPS need to be checked and time to be aligned to get correct sequence for analysis. Action-MePTCL.
- SOE not recorded for tripping of all elements from Mynkre and Leshka HEP. The same needs attention by team MeTCL and MePGCL.
- Reason for tripping of 3 units from Umium stage-1 along with actions taken may be updated by MePGCL
- MePGCL may submit the Switchyard layout of Leshka for understanding of equipment location

Sub-committee may deliberate

B.13 Monitoring of internal and external audit by Users

IEGC 2023, Regulation 15 mandates all Users to conduct an internal audit annually and a third-party protection audit for substations at 132kV and above every five years or as recommended by NERPC.

Also, the third-party protection audit report must be submitted to NERPC and NERLDC within one month of the audit completion. Till 17.02.2025, key observations from the third-party audit reports submitted by AEGCL are mentioned in ***Annexure B.13.*** However, no rectification reports after third party audit are submitted by MePTCL till 17.02.2025. Hence, MePTCL is requested to submit the protection audit reports, along with action plan for rectification of deficiencies detected, to the NERPC and NERLDC

It is essential to maintain a list that monitors the proposed dates for internal and external audits versus their actual completion dates. To facilitate this, ***NERLDC has created a Google spreadsheet that includes details of protection audits, the AR status of lines, and SPS mapping on SCADA. All utilities are kindly requested to update the latest status to facilitate easy tracking and ensure onward IEGC compliance.***

Utilities may update

B.14 Implementation of SPS related to overloading of 2x160 MVA 220/132 kV ICTs at BTPS

Reporting party: APGCL
Classification: SPS related to overloading of Transformer
Operation: Load disconnection

The purpose of this SPS is for preserving system stability against loss of N-1 contingency for 2x160MVA, 220/132kV ICTs at BTPS(Assam) during peak load conditions by implementing load shedding in case of loss of one ICT during peak load condition.
The total load shedding of 140MW will be done in two stages. Stage-1 would include the 33kV feeders associated with "GROUP-A" and Stage-2 would include the 33kV feeders associated with "GROUP-B" Scheme:
If any of the 2x160 MVA 220/132 kV ICTs at BTPS (Assam) are loaded to 122% of their full load capacity, Overcurrent Stage-2 will operate within 2 seconds and Stage-3 will operate after 3 seconds
Scheme already reviewed by NERLDC and comments shared on 23/09/2024
AEGCL to update the status of implementation of the same.

B.15 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)	

Display of SPS SCADA Mapping

At present, there are 22 numbers of SPS under operation and 3 numbers 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 75th PCCM
1	**Tripping of 400kV Palatana-Silchar D/C-** when both modules of Palatana are in service causes tripping of HV side breaker of 2x125 MVA, 400/132 kV ICT at Palatana	After commissioning of 400 kV Palatana - Surajmaninagar line-1, there is no requirement of this SPS and hence, it is to be kept OFF. However, the SPS at Palatana is to be kept ON during shut down of 400 kV Palatana-Surajmaninagar(ISTS) line-1	Done
2	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	Done
3	**Related to the safe evacuation of power from BgTPP(NTPC) generation -** BGTPP generation reduction to 600 MW	-	Done
4	**Related to Generation evacuation from Monarchak(NEEPCO) Power Plant -** Tripping of STG at Monarchak under outage of any one circuit of 132 kV Monarchak –	Commissioning of 132 kV Monarchak-Surajmaninagar line	Mapping done till SLDC. To be extended till

	Rokhia line & 132 kV Monarchak-Udaipur		NERLDC by the SLDC
5	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.	Done
6	**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	-	Done
7	**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	-	Done
8	**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)	-	Done
9	**Related to Outage of any one of the 400/132kV 2x360MVA ICTs at Panyor Lower Hydro Power Station** -	After restoration of 132 kV Panyor -Itanagar & 132 kV Panyor -Pare line (expected by 31st Mar'24)	To be checked

	Disconnection of One Unit of Panyor (135 MW) and One Unit of Pare (55 MW)		
10	**SPS related to outage of 220 kV Azara-Sarusajai DC -** **On tripping of 220 kV Azara-Sarusajai D/C**: 140-150 MW load disconnection is to be done at Sarusajai and Kahilipara areas	Commissioning of 400 kV Sonapur Substation. LILO of 400 kV Bongaigaon-Byrnihat Line at Sonapur.	Done
11	**SPS related to outage of 220 Misa-Samaguri DC:** **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.	RTU issue. By March'25
12	**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	Done
13	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
14	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	RTU issue. By March'25
15	SPS related to reliable power supply to Arunachal Pradesh from Assam through the Roing-Chapakhowa DC line: Triggering criteria-1: Tripping of either 132KV Tinsukia-	i) Commissioning of 220kV Kathalguri-Namsai D/C ii) Reconductoring of 132kV Tinsukia-Ledo and 132kV Tinsukia - Rupai Lines	Done

	Ledo or 132KV Tinsukia-Rupai line with current exceeding 300A in 132kV Tinsukia - Ledo or 132KV Tinsukia - Rupai line, Triggering criteria-2: Overloading of 132 kV Tinsukia-Rupai line when current in the line crosses 300 Amps. , 8-10 MW of load at 132kV Rupai GSS will be shed.		
16	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	By Jan'25
17	Related to outage of any one circuit of 132 kV Leshka – Khliehriat D/C	Reconductoring of 132 kV Khliehriat – Leshka D/C	By Jan'25
18	Related to 132kV SM Nagar(ISTS) - SM Nagar line to prevent Overloading	i) Commissiong of 132kV Monarchak - SM Nagar D/C ii)HTLS Reconductoring of 132kV SM Nagar(ISTS) - SM Nagar, 132kV SM Nagar(ISTS) - Budhjungnanagar, 132kV PK Bari(ISTS) - Ambasa and 132kV PK Bari(ISTS) - PK Bari	By Jan'25
19	SPS at Tezu substation to prevent under voltage issue prior to connection of Niglok load at Pasighat area of Arunachal Power System		PGCIL by March'25
20	SPS at Namsai substation to prevent under voltage issue prior to connection of Niglok load at		PGCIL by March'25

	Pasighat area of Arunachal Power System		
21	**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	Done
22	**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	Done
Sl. No.	**SPS under implementation**	**Long term measures**	
1	SPS at Pasighat substation for preventing Overloading of 132 kV Tinsukia-Rupai/Tinsukia-Ledo Lines in the event of a tripping on the 132 kV Paynor-Ziro Line	Commissioning of 220kV Kathalguri – Namsai D/C lines	
2	SPS related to overloading of 2x160 MVA 220/132 kV ICTs at BTPS	Feb'25	
3	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	

Sub-committee may deliberate

Agenda from AEGCL

B.16 Issues faced during shutdown of 220kV Sarusajai-Mirza DC line-

i) Gateway Validation during upgrading of CT ratio for a feeder. As per technical observation, Gateway signal validation is not necessary during CT ratio upgradation.
ii) Delay in settings approval during CT ratio upgradation of a feeder which led to delay in charging of a crucial 220kV link in Guwahati capital area
Detailed description of the issues has been provided in the **annexure B.15**
Sub-committee may deliberate

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

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 stated that the monthly progress reports will be monitored at PCC forum. He requested the States to send monthly progress report and action plan accordingly.

In 75th PCCM, NERLDC informed that the progress report for Dec'24 have been received from Manipur and Tripura only. Forum requested rest of the states to timely submit the reports. NERPC Secretariat to send the consolidated report to Honble CERC on priority.

Sub-committee may deliberate

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:

Utilities updated in 75th PCCM as provided in the table below:

Sl No	**Element Name**	**Tripping date and time**	**Relay End1**	**Relay End2**	**A/R not Operated**	**Remarks from Utility (75th 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	The Relay Testing kit has been received, but control cable is not available. Work under progress. AR (without carrier) to be enabled by Feb'25
2	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
6	132 kV Aizawl - Tipaimukh Line	02-11-2024 10:22	DP, ZII,Y-E, FD: 32.4 KM, Carrier received after CB opening , No Carrier aided tripping	LLG fault. IL1 1.06kA IL2 0.88 kA FD: 63.3 km (A/R Successful)	Aizawl(PGCIL)	PGCIL informed that carrier from Tipamukh was received only after tripping of CB, so no Carrier aided tripping occurred, so no AR. MSPCL to check the time delay settings for sending carrier at Tipaimukh. MSPCL will update in next meeting
7	220 kV Behiating - Tinsukia 1 Line	02-11-2024 10:32	DP, ZI, B-E, 1.1 kA	DP, ZI, B-E	Both ends	AEGCL to look into the matter. Work to be completed within one month
9	132 kV Panchgram - Lumshnong Line	04-11-2024 12:50	DP, ZI, Y-E, FD: 12.5km, 3.2kA	DP, ZI, Y-E, FD: 39.9 km	Both Ends	AR in disabled mode at both ends. To be enabled after CT replacement at Lumshnonng end by MePTCL

						by last week of Jan'25
11	132 kV Bokajan - Dimapur Line	10-11-2024 13:08	DP, ZI, Y-E, FD: 20.3 kms	DP, ZI, Y-E, FD: 8.4 KM, AR Successful	Bokajan (AEGCL)	Issues with pneumatic breakers at Bokajan end. Orders have been placed for new breakers. Expected to be completed by end of Feb'25
	132 kV Bokajan-Sarupathar Line	28-12-2024 12:52	DP, ZI, Y-B, FD: 1.7 Km	DP, ZI, Y-B	Both ends	AEGCL updated that 3 phase AR will be enabled in next shutdown

Utilities may further update

C.3 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.

In 75th PCCM, M/s PRDC updated that training may be conducted in Feb'25 on a date suitable to the forum. Forum decided that PRDC may conduct the training on 11th and 12th Feb'25 in Guwahati and requested the utilities to send the nominations to PRDC timely.

M/s PRDC may update

C.4 Implementation of Uniform Protection protocol vis-à-vis review of protection settings

The Uniform Protection Protocol has been approved by 15th NPC on 14.11.24. As the protocol, review of protection setting of following power system elements have to be done -

- Transmission Lines
- ICTs and Reactors
- Generators (Thermal, Gas, Hydro)
- FACTS device
- HVDC
- RE source-based generation.

As the review of setting of above transmission elements are exhaustive such review of settings shall be done on individual basis by all PSC members.

In 73rd PCCM, NLDC (through VC) requested the forum to start reviewing the protection settings of the power system elements in compliance with the Uniform Protection Protocol. NERPC stated that a protection sub-group has been constituted in 71st PCCM for the purpose and the first meeting of the sub-group will be held shortly.

In 74th PCCM, Forum requested NERPC sub-committee (which has been formed to review setting of Protection protocol in NER) to review the settings of Tripura State power system and submit the report in next PCC meeting.

In 75th PCCM, NERPC informed that NERLDC has shared a google spreadsheet requiring details on reviewing of protection settings by every utility. It was further informed that once Tripura provides the required information, the meeting of the sub-committee will be held.

Forum requested all the concerned utilities to provide the details timely.

Sub-committee may deliberate

C.5 Tripping of 132 kV Dimapur-Doyang I line on 09-Nov-24:

At 08:34 Hrs of 09-11-2024, 132 kV Dimapur-Doyang I tripped.

As per submitted DR, there was no fault in the system. At 08:34:42.728 Hrs, Bus Bar protection operated at Doyang end and CB open at 08:34:42.758 Hrs. There was no tripping from Dimapur (PG) end.

NEEPCO is requested to furnish the reason of Bus bar protection operation at Doyang end and its remedial measures.

In 75th PCCM, NEEPCO informed that there is some issue with the BB protection at Doyang. He further stated that there is urgent requirement of external protection audit at the substation in order to identify all the protection issues, including the issue with the BB protection, and suggest remedial measures.

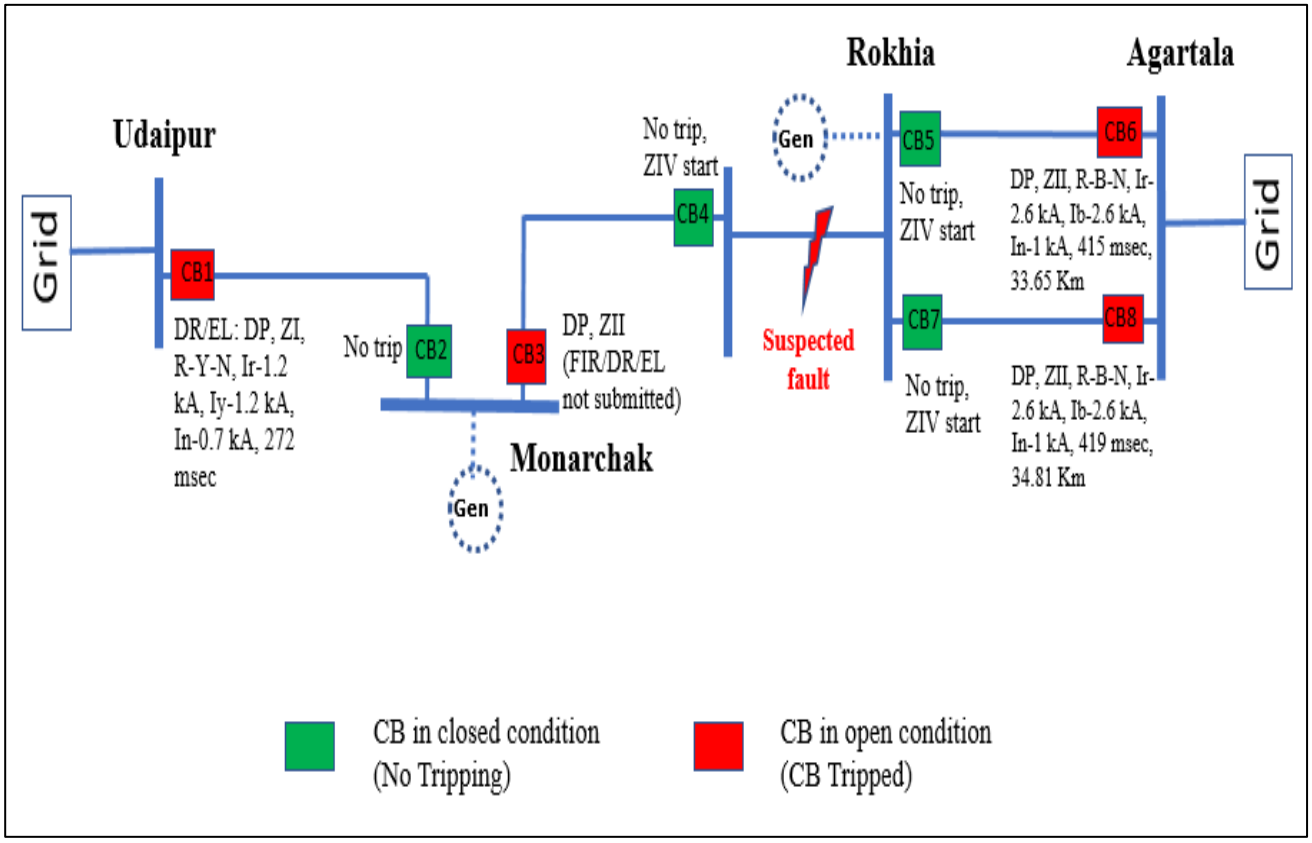
Forum advised NEEPCO to conduct the BB stability test at the earliest. Forum also suggested that NEEPCO may take support of NTPC in this regard.

Forum also noted that checking of BB protection stability test reports can made a part of FTC procedure for charging of elements.

NEEPCO may update

C.6 Grid Disturbance in Monarchak and Rokhia areas of Tripura on 06-12-2024:

Monarchak and Rokhia generating station of Tripura Power System was connected with rest of NER Grid through 132 kV Monarchak – Udaipur Line, 132kV Monarchak – Rokhia line and 132kV Rokhia – Agartala D/C lines. At 13:06 Hrs of 06.12.2024, 132 kV Monarchak – Udaipur Line, 132kV Monarchak – Rokhia line and 132 kV Rokhia – Agartala D/C lines tripped along with Rokhia unit-9. Load loss of 8 MW and generation loss of 17 MW occurred.



As per DR analysis, R-B-N fault initiated at 13:05:19.698 Hrs and cleared within 415 msec from Agartala end on operation of DP, ZII. No tripping from Rokhia end (ZIV start)

132 kV Monarchak-Rokhia line tripped on ZII from Monarchak (No FIR/DR/EL submitted). There was no tripping from Rokhia end (ZIV start)

Following observations:

• Suspected fault in 132 kV Rokhia-Rokhia link feeder which was not cleared leading to tripping of healthy lines 132 kV Monarchak-Rokhia line & 132 kV Agartala-Rokhia D/C lines on ZII from remote ends.

• At the same time, 132 kV Monarchak-Udaipur line tripped on ZI from Udaipur end which seems unwanted.

• At the same time, AGTCCPP Unit-2 & 6 tripped which seems to be misoperation.

TPTL/NEEPCO is requested to:

• Share the root cause and remedial actions taken.

• Update the status of installation of Line differential protection in 132 kV Rokhia-Rokhia Link feeder.

• Furnish the reason of tripping of 132 kV Monarchak-Udaipur line for fault in 132 kV Rokhia S/S.

• Reason of tripping of AGTCCPP Unit-2 & 6.

• Submit detailed report in compliance with IEGC-23

• Submit DR/EL within the specified timeline as per IEGC-23

As per 75th PCCM minutes

1. TSECL informed that fault was near the main bus at Rokhia S/S as a CCTV cable snapped and came near the bus and flashover occurred.

2. Regarding the Line Differential Protection on the Rokhia-N.Rokhia link, Tripura updated that CB and CT have been installed, optical fiber is yet to be installed and protection relays will be operational by Feb'25. Forum advised TSECL to commission distance protection and EF protection in the link at the earliest.

3. Regarding the replacement of relay panels at AGTCCPP, NEEPCO shutdown is planned for Feb'25

4. TSECL to review the zone 1 settings at Udaipur end for Monarchak line.

Tripura may update

C.7 Status Update on Parameter standardization of Disturbance Recorder (DR):

The parameter standardization of Disturbance Recorder (DR) was approved during the 59th PCCM (B.30 Standardization of Disturbance Recorder (DR) Channels). Subsequently, it has been incorporated into the Protection Protocol of the North Eastern Region by NERPC (62nd PCCM 20th December 2023). As per the Uniform Protection Protocol, DR parameters are to be standardized in line with the recommendations of the FOLD working group-3.

Status as updated by the utilities in the 75th PCCM -

Sl. No.	Utility Name	Status update (75th PCCM)
1	DoP Arunachal Pradesh	By Feb'25
2	DEPL	
3	AEGCL	Standardised as per FOLD Working Group-3 report
4	APGCL	
5	MSPCL	By Feb'25

6	MePTCL	By Feb'25
7	MePGCL	By Feb'25
8	P&ED Mizoram	By Jan'25
9	DoP Nagaland	Will update before next PCCM
10	TSECL	By Feb'25
11	TPGCL	
12	POWERGRID	Most are standardized. Internal review is ongoing and remaining will be done by Jan'25
13	NEEPCO	Almost all standardized. The rest will be done by Feb'25
14	NHPC	By Feb'25
15	NTPC	
16	OTPC	Done
17	NTL	
18	MUML	
19	KMTL	

All utilities are requested to provide an update on the status of uniform adoption of parameter standardization for Disturbance Recorder (DR).

NERLDC has prepared a google sheet with substation wise and feeder wise details of each state. All utilities are requested to update the status of DR parameter standardization in the google spreadsheet.

Utilities may update

C.8 Modification of SPS Scheme related to the outage of 132 kV Leshka – Khliehriat D/C after LILO at 132 kV Mynkre S/S:

With the recent LILO (Line In Line Out) of the 132 kV Leshka – Khliehriat D/C at the 132 kV Mynkre Substation, which is now connected to the 132 kV Goldstone generating station, the existing SPS scheme at Leshka requires modification to accommodate changes in the evacuation of power from both Leshka HEP and Goldstone generating station.

Proposed modification: The modified SPS scheme should ensure the safe evacuation of both Leshka HEP and Goldstone Generation under the condition that

any one circuit of the 132 kV Leshka – Mynkre D/C or 132 kV Khliehriat – Mynkre D/C trips or goes under outage.

With the integration of 132 kV Mynkre Substation and the connection of 132 kV Goldstone Generation to the Leshka – Khliehriat D/C, the evacuation of power via a single circuit becomes insufficient.

If one of the circuits trips, both Leshka and Goldstone generation cannot be fully evacuated, necessitating a reduction in generation from both sources to prevent overloading the remaining line. **Trigger condition:** If any one circuit of the 132 kV Leshka – Mynkre D/C or 132 kV Khliehriat –Mynkre D/C trips or goes under outage.

Action taken: One unit of Leshka HEP and one unit of Goldstone Generation will trip in the event of a circuit trip.

As per 75th PCCM minutes
Forum noted that the SPS has to be revised and MePTCL to prepare the scheme.
MePTCL may update

C.9 Requirement of SPS in Arunachal Pradesh Power system:

Reporting party: DoP Arunachal Pradesh & POWERGRID
Classification: SPS related to reliable power supply to Arunachal Pradesh
Operation: Load disconnection

1. **Special Protection Scheme (SPS) at Tezu substation to prevent under voltage issue prior to connection of Niglok load at Pasighat area of Arunachal Power System:**

   The purpose of this SPS is to mitigate low voltage issues at Namsai and Tezu Substations by implementing a coordinated load-shedding scheme through automatic disconnection of 132/33 kV ICTs during specific low-voltage conditions.

   Scheme:

   When voltage at Tezu drops to 105 kV for 2.5 sec, a signal will be generated to trip HV side CB of ICTs at Tezu.

C.10 Special Protection Scheme (SPS) at Pasighat substation for preventing Overloading of 132 kV Tinsukia-Rupai/Tinsukia-Ledo Lines:

The purpose of this SPS is to mitigate overloading on the 132 kV Tinsukia-Rupai line in the event of a tripping on the 132 kV Paynor-Ziro Line through automatic disconnection of 132 kV Pasighat-Napit line under specific conditions, after the connection of the Niglok load in the Pasighat area of Arunachal Power System.

Scheme:

Trigger condition:

i) Power flow direction change: The power flow in the 132 kV Pasighat-Along Line changes from import to export mode, with a current magnitude of 10 Amperes.

ii) Overloading of Pasighat-Napit Line: The current on the 132 kV Pasighat-Napit Line exceeds 65 Ampere with a time delay of 3.5 seconds.

If both of the above conditions are fulfilled, a signal will be generated to trip the CB of 132 kV Pasighat-Napit line at Pasighat.

As per 75th PCC minutes, regarding SPS 1, NERLDC informed that the SPS has been commissioned and functional and has operated successfully during low voltage situation (105kV at Tezu) on 10th Jan'25

Regarding the SPS2, DoP Ar. Pradesh updated that the SPS will be implemented by end of Jan'25

Sub-committee may deliberate

C.11 Relay Setting Database for 66 kV and Above Substations:

Maintaining a comprehensive relay setting database is essential for effective protection analysis and ensuring accurate coordination of the protection system. A well-maintained database benefits all stakeholders by enhancing the accuracy and reliability of these records.

All utilities are requested to share the substation-wise relay setting status on the PDMS portal of NERPC in comparison with the actual settings implemented at site.

As per 74th PCC minutes, Forum requested all the utilities to update the relay settings of 66 kV *and above elements in the PDMS portal at the earliest.*

As per 75th PCC minutes, NERTS updated that they have started the process of updating the settings in PDMS. Forum requested all the utilities to update their settings in PDMS portal as well as the Google sheet prepared by NERLDC for updating relay settings *within three months, i.e. by April'25.*

NERLDC has prepared a google spreadsheet containing substations of each state. All utilities are requested to review and update relay settings in the google spreadsheet.

Sub-committee may deliberate

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 75th PCCM

Sl no	State	Important Transmission lines where AR has to be enabled at the earliest	Status (74th/73rd/72nd PCCM)	Status as per 75th PCCM
1.	Arunachal Pradesh	132kV Balipara-Tenga, 132kV Ziro-Daporijo-Along-Pashighat link	PLCC implementation under PSDF underway. 3-Ph AR has been enabled on the lines (without carrier)	3 Ph AR has been enabled on the lines. PLCC implementation underway.
2.	Assam	All 220kV and 132kV lines	Process underway. 220kV – Completed except for Kathalguri-tinsukia line which	220 kV -all done except for Amguri-NTPS and Tinsukia-Kathalguri lines

			will be done within 2 months. Delay is due to the shutdown issue with Discoms. 132kV – completed except for Dhemaji and Majuli Substations, to be done by Oct'24.	132 kV – Completed except for 2 lines. The same will be completed shortly
3.	Manipur	132kV Imphal-Ningthounkong	1. In 71st PCCM Manipur updated that 132kV Imphal-Ningthounkong line work has been completed & 4 additional line have been considered for AR implementation which work will be completed by end of Sept'24. DPR for PLCC under preparation. To be completed shortly.	
4.	Meghalaya	**Annexure** (D.1)	Matter was thoroughly discussed in State protection committee.	AR on Lumshnong - Panchgram line will be enabled after FTC is completed

			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 Agartal-Rokhia DC, 132kV, 132kV Agartala-Budhjungnagar	Relay testing kit has been repaired but not received yet. Target-Sept.'24	Relay testing kit received. AR to be enabled by Dec'24.

Utilities may further update

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

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

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

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

Status as updated in 75th PCCM -

Name of utility	**Last updated status (74th/73rd/72nd PCCM)**	**Status as per 75th 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 has been taken up as resolution by RPC forum	Pending with PSDF
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 prepared and will be sent to PSDF shortly.

	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 15th July.	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 waited 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 75th PCCM:

Sl No	Details of the events(outage)	Remedial action suggested	Name of the utility & previous update	Status as per 75th 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, 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 July'24	Offer from Hitachi is still awaited.

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 400/220/132 KV Killing SS	Bus-Bar protection of 220kV bus at Killing SS	MePTCL BBR defective. Order placed in Oct'23, will arrive in around 7 months, i.e. by May or June'24	Card received but found defective. New Card will be sent by the OEM shortly.
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 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 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. 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 Dharmangar line (agenda item C.5 of 69th 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	Pneumatic CB at P K Bari end to be replaced with spring charging type CB	TSECL (Work in progress)	NERPSIP informed the 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 & parallelly 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

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Annexure I

Observations and Recommendations of Third-Party Protection Audit

Third Party Protection Audit Of 220/132/33kV Salakati (BTPS) Substation of AEGCL Conducted by NERPC on 31.01.2024

1. Switchyard illumination is poor. It is recommended to improve the illumination at the earliest

2. High vegetation growth is observed in the switchyard. It is recommended to clean the switchyard perimeters.

3. Bay name plates are not proper and bay equipments are not marked. It is recommended to properly mark the bays and bay elements as per colour coding.

4. Surge arrestors are not properly maintained. It is recommended to replace all the non-functioning surge arrestors.

5. AEGCL has to ensure that relay settings of each element are as per the NER protection protocol. Any miscoordination and shortcoming in the relay settings have to be immediately brought to the notice of NERPC.

6. Earthing pits are not maintained properly. It is recommended to carry out the requisite tests of earthing pits at the earliest and proper numbering of earthing pits shall be done.

7. Silica Gel of transformers to be monitored properly for moisture check.

8. Power transformer radiator fans are missing. It is recommended to reinstall the missing radiator fans.

9. All 132 kv isolators are in poor shape. It is recommended to replace all the 132 kV isolators and 33 kv spare isolators should also be maintained.

10. Specific record of consumption of SF6 gas should be maintained.

11.Above recommendations have to be complied within 2 years and progress report on above recommendations have to be regularly put up in monthly Protection coordination sub-committee meeting of NERPC.

Third-Party Protection Audit Of 132/33kv Gauripur Substation of AEGCL Conducted by NERPC on 09.05.2024

1. As per protection philosophy AR shall be implemented in 132 kV feeder.
2. Adequate safety kit is not available.
3. Disposal of scrap materials.
4. Partial oil leakage in station transformer observed. Transformer is very old.
5. Air cell of both ICT-I&II found discharge condition.
6. Mandatory span of 132kV & 33kV level shall be maintained as per norms.

132kV

i. CB -01 no.
ii. CT-NIL
iii. LA-02 Nos.
iv. Isolator-01 Nos.

33 kV

i. CB-01no.
ii. CT- 03Nos.
iii. LA- 02 Nos.
iv. Isolator- 01 No.

7. Coolong system in C/R and Battery room shall be improved.
8. The existing KVM switch getting frequently disturbance. The same shall be replaced.
9. Second battery bank(110V) along with Battery charger shall be required for two separate DC Source in CRP panel.
10. Previous testing reports and protection audit reports have to be maintained at the substation
11. Above recommendations have to be complied within 2 years and progress report on above recommendations have to be regularly put up in monthly Protection coordination sub-committee meeting of NERPC

Third-Party Protection Audit Of 220/33kV Jawaharnagar Substation of AEGCL Conducted by NERPC on 08.05.2024

1. Bay Marking is not done properly. Bay Marking and equipment identification should display in GIS.
2. Rusting at LA counter reading Monitor, same needed to be painted.
3. Test results of Earth pit value shall be displayed on cover slab of Earth pit.
4. The silica gel has deteriorated in both the ICT's and needs urgent replacement.
5. Hole sealed to be done in all CVT JB, ICT MB, CT JB, Isolator MOM Box etc.
6. Equipment identification to be done in Isolator, CT, CVT, LA in AIS as well as GIS equipment.
7. Air Cell found in discharged condition.
8. Earthing of 220kV Tower shall be done as per Tower Earthing norms.
9. Water logging observed in NIFPS tank in both the ICT-I & ICT-II
10. Bay marking and equipment identification shall be displayed in GIS.
11. Mandatory spare of 220 kV ,33 kV voltage level shall be maintained (as per norms).

12. RTU is not reporting, same need to be rectified.
13. M1 & M2 relay in line protection found same make and model
14. Cover slab found in open condition in 33kV system.
15. 33kV LA is not available in 33kV outgoing feeder.
16. Painting shall be done in ICT MB and CVT JB.
17. Discharge test of both Battery Bank-I & II shall be carried out.
18. Previous testing reports and protection audit reports have to be maintained at the substation.
19. Above recommendations have to be complied within stipulated time limit and progress report on above recommendations have to be regularly put up in monthly Protection coordination sub-committee meeting of NERPC

Third-Party Protection Audit Of 132/33kV Kahilipara Substation of AEGCL Conducted by NERPC on 31.01.2024

1. OPGW is available for only Sarusajai feeder, while other feeders have only PLCC link. It is recommended that OPGW link, for tele-protection, should be commissioned on rest of the feeders
2. Auto reclosure (3 phase) on all the emanating feeders has to be enabled at the earliest.
3. Auto-run mode of DG set has to be enabled and fuel level in DG set has to be maintained at or above 50 percent.
4. AEGCL have to ensure that relay settings of each element are as per the NER protection protocol. Any miscoordination and shortcoming in the relay settings have to be immediately brought to the notice of NERPC.
5. Some bay equipment like LA, CVT, CT, isolators, MBs etc. along with one station auxiliary transformer are old and rusted. The same have also been highlighted in the third-party protection audit conducted on 17.11.2021. These elements need to be replaced at the earliest
6. Nitrogen injection Based Transformer Fire Protection System (NIFPS) should be provided for all the ICTs subject to space constraints
7. DG set
8. Proper lighting system and firefighting provisions have to be ensured in the Switch yard
9. Previous testing reports and protection audit reports have to be maintained at the substation
10. Above recommendations have to be complied with within 2 years and progress report on above recommendations have to be regularly put up in monthly Protection coordination sub-committee meeting of NERPC

Final Report of Third-Party Protection Audit of 220/132kV Salakati Substation of Power Grid Conducted by NERPC on 09.05.2024

1. Oil Seepage observe in ICT-I.
2. Proper air Conditioning in the control room needs to be maintained.
3. Cover slabs are missing and damaged over the cable trenches.
4. OPGW may be used for the protections.
5. Previous testing reports and protection audit reports have to be maintained at the substation
6. Above recommendations have to be complied as early as possible and progress report on above recommendations have to be regularly put up in monthly Protection coordination sub-committee meeting of NERPC.

Final Report of Third-Party Protection Audit of 220/132kV Salakati Substation of Power Grid Conducted by NERPC on 09.05.2024

1. 132kV Transfer bus is out of service as bus coupler is non-functional. It is recommended that the bus-coupler be brought in service at the earliest.
2. OPGW, for tele protection, is available for Mirza and Kahilipra feeders only. It is recommended that OPGW link should be used for tele protection on rest of the feeders at the earliest.
3. Bus Bar protection for 220kV Bus is out of service, the same has to be enabled at the earliest
4. Tripping details of Auxiliary supply has to be maintained
5. AEGCL have to ensure that relay settings of each element are as per the NER protection protocol. Any miscoordination and shortcoming in the relay settings have to be immediately brought to the notice of NERPC
6. Auto reclosure (3 phase) on all the feeders has to be enabled at the earliest
7. RTUs, for Auxiliaries, are not reporting to SCADA. Same has to be ensured
8. Nitrogen injection Based Transformer Fire Protection System (NIFPS) should be provided for all the ICTs
9. Proper lighting system and firefighting provisions like foam extinguisher etc. have to be ensured in the Switch yard
10. Previous testing reports and protection audit reports have to be maintained at the substation
11. Above recommendations have to be complied with within 2 years and progress report on above recommendations have to be regularly put up in monthly Protection coordination sub-committee meeting of NERPC

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ISSUES REGARDING GATEWAY SIGNAL VALIDATION WHEN CT RATIO IS CHANGED

The following issue has been faced during the shutdown of 220kV Sarusajai – Mirza Double Ckt lines at AEGCL

Validation of Gateway signals after upgradation of CT Ratio for the element:

i) Gateway reporting of Analog and digital signals at AEGCL following the sequence: The signals from the respective bays are received by the Gateway via IEC 61850 protocol and the signals are then sent to the SLDC via IEC 101 or IEC 104 protocol. The further transmission of signals from SLDC to the RLDC is via ICCP protocol

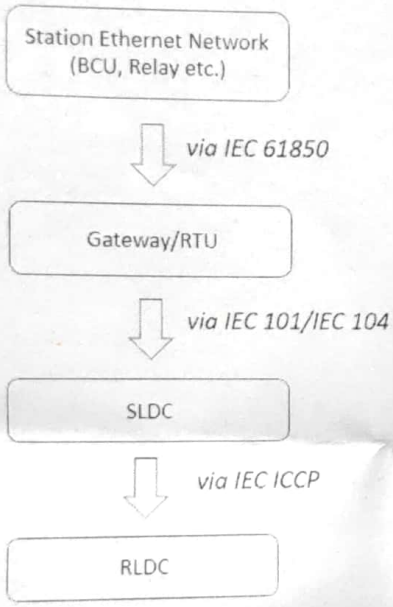


Fig: Gateway communication process from station to control centre

ii) The IO Address (IO Address is unique for each signal) is provided by the SCADA team at SLDC and the same is configured at Substation level in the Gateway/RTU system. The IO Address is configured with respect to the IEC 61850 corresponding signals

E.g. If the IO Address for R phase current is set as "*208*" by the SLDC, the address is put against the IEC 61850 signal "*MMXU.phsA.mag.f*"

During the commissioning of the Gateway at the Substation, signal validation was done successfully. As such, when the CT ratio is upgraded at the substation, technically there should not be any requirement for Gateway signal validation to be repeated.

At field level, after each CT ratio change/upgradation, the current value is verified at BCU and relays by CT primary injection. The Gateway addressing is never affected in such cases.

We request that, NEPRC should consider the above argument and remove Gateway signal validation works during charging permission of elements including CT ratio change/upgradation works

DELAY FOR RETURNING SHUTDOWN OF 220kV SARUSAJAI – MIRZA LINES I & II

Case	Element Name	Time of Shutdown	Time of charging	Remarks
1	220kV Sarusajai – Mirza Line I	08:08Hrs on 13.02.2025	22:46Hrs on 13.02.2025	Delay due to settings approval from NERPC
2	220kV Sarusajai – Mirza Line II	08:17Hrs on 14.02.2025	10:15Hrs on 15.02.2025	Delay due to settings approval from NERPC

Description of the issue: The CT ratio for 220kV Sarusajai – Mirza Lines I & II was upgraded from 800/1A to 1600/1A. The shutdown was availed under (D-3)

In cases such as CT ratio upgradation, the .csv files from the relays can only be generated for the new settings after the line is under shutdown. Hence, the setting files cannot be sent for validation beforehand.

As per the above table, the charging of the line was delayed due to delay in approval of relay settings from NERPC end. In Case:2, the charging was delayed by a whole day and the critical capital area of Guwahati was dependent on only one line 220kV Sarusajai – Mirza line I due to the delay in approval for charging the ckt II. (N-1) redundancy was absent during the whole time.

AEGCL request NERPC to kindly make certain changes in the "Relay settings approval" rule. The utility should be allowed to charge the element and the relay settings approval can be received post facto. Else, the utility can provide a demo relay settings beforehand (considering the changes) for the approval and the settings from field relay can be sent on the day of shutdown

ASHUTOSH BHATTACHARJEE
General Manager
Testing & Commissioning and Communication
Narengi, Ghy- 26

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	

Annexure B.2

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड

GRID CONTROLLER OF INDIA LIMITED

Formerly Power System Operation Corporation Limited

North Eastern Regional Load Despatch Centre, Shillong

जनवरी, 2025 माह के लिए ग्रिड घटना की विस्तृत विश्लेषण रिपोर्ट

Detailed Analysis Report of Grid Event for the month of January, 2025

Table of Contents

Sl No	Area Affected	GD/GI/Near miss	Date & Time	Page No
1	Napit and Niglok areas of Arunachal Pradesh Power System	GD-I	22:25 Hrs of 07-01-2025	3-6
2	Daporijo area of Arunachal Pradesh Power System	GD-I	15:45 Hrs of 13-01-2025	7-11
3	Leshka HEP of Meghalaya Power System	GD-I	09:16 Hrs of 20-01-2025	12-17
4	Along area of Arunachal Pradesh Power System	GD-I	18:36 Hrs of 23-01-2025	18-23

ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / North Eastern Regional Load Despatch Centre
कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Napit and Niglok area of Arunachal Pradesh Power System of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))
(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date (दिनांक):07-01-2025

1. **Event Summary (घटना का सारांश):**

Napit and Niglok area of Arunachal Pradesh Power System were connected with rest of NER Grid via 132 kV –Pasighat- Napit D/C Lines.

At 22:25 Hrs of 07-01-2025, 132 kV Pasighat-Napit D/C Lines tripped. Due to tripping of these elements, Napit and Niglok areas of Arunachal Pradesh Power System were isolated from NER Grid and collapsed due to no source available in these areas.

2. **Time and Date of the Event (घटना का स मय और दिनांक):** 22:25 Hrs of 07-01-2025

3. **Event Category (ग्रिड घटना का प्रकार):** GD-I

4. **Location/Control Area** (स्थान/नियंत्रण क्षेत्र): Napit and Niglok areas of Arunachal Pradesh Power System

5. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	50.01	1886	2061
Post Event (घटना के बाद)	50.01	1879	2065

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the event))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	NIL
Weather Condition (मौसम स्थिति)	Inclement weather

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 5 MW

3. **Duration of interruption (रुकावट की अवधि):** 15 Hrs 37 mins

4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

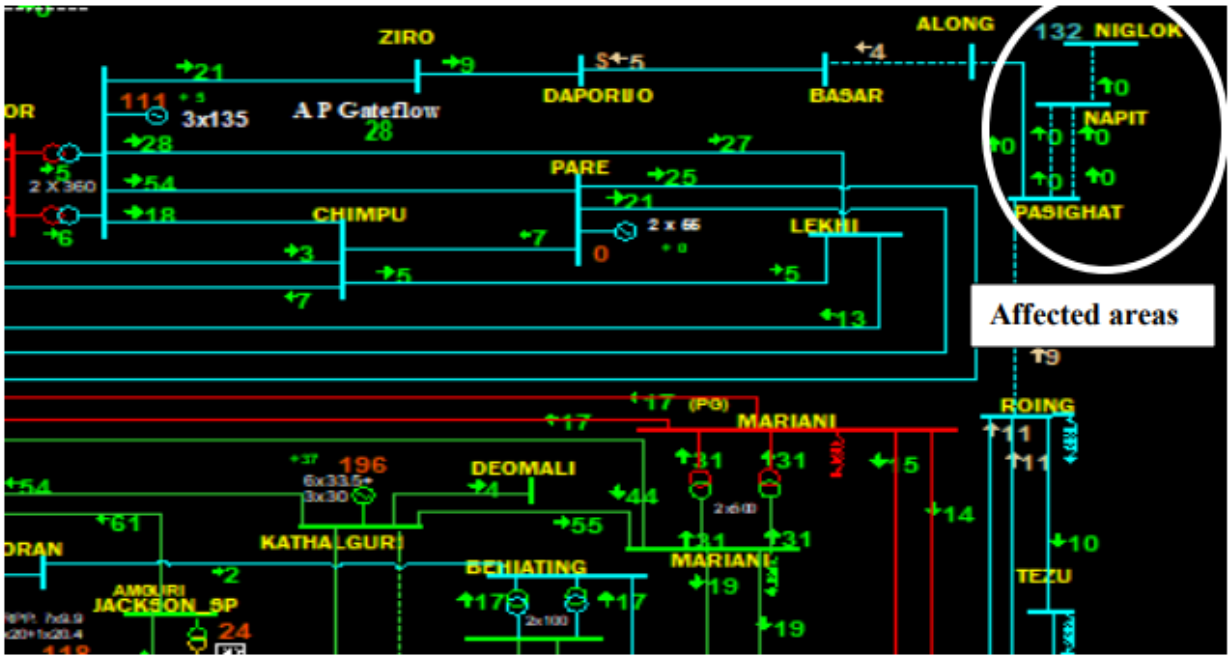


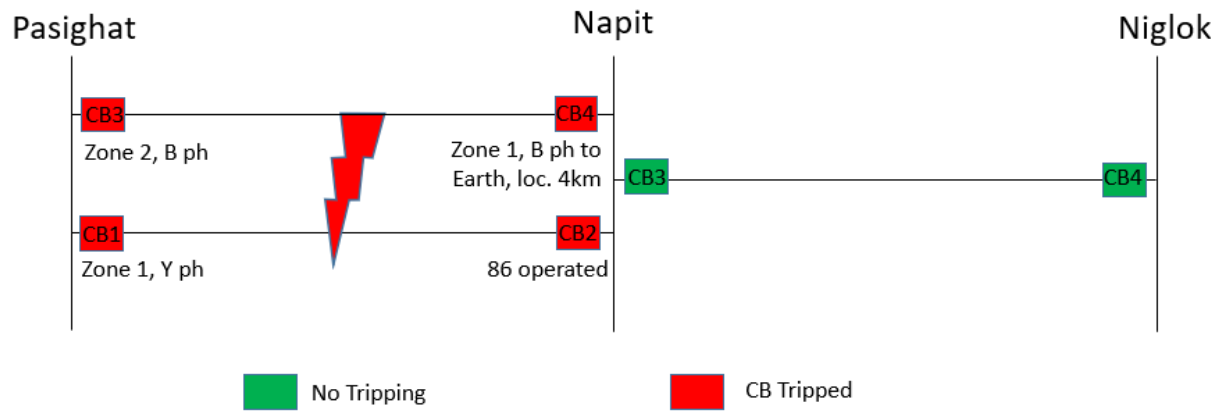
Figure 1: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** NIL

6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

क्र.सं / Sl no	ट्रांसमिशन/जेनरेशन तत्व का नाम / Transmission/Generation element name	ट्रिपिंग का समय / Tripped Time (hh:mm)	पुनर्स्थापना का समय / Restoration time (hh:mm)	रिले इंडिकेशन एंड ए / Relay Indication End A	रिले इंडिकेशन एंड बी / Relay Indication End B
1	132 kV Pasighat-Napit line 1	22:25 (of 07-01-2025)	13:12 (of 08-01-2025)	Zone 2, Bph	Zone 1, Bph to Earth, loc. 4km
2	132 kV Pasighat-Napit line 2	22:25 (of 07-01-2025)	13:14 (of 08-01-2025)	Zone 1, Yph	86 operated

7. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):



According to information provided by DoP, AP, tripping occurred due to a tree falling between 132 kV Napit - Pasighat D/C Lines

8. Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):

- No DR/EL files submitted for 132 kV –Pasighat-Napit D/C Lines, which is the violation of IEGC due to which analysis could not be concluded. DoP, AP is requested to update the reason for non-submission of FIR/DR/EL files in the tripping portal.
- Exact location of the fault needs to be provided by DoP, AP.
- SOE not recorded for tripping of 132 kV –Pasighat-Napit D/C Lines. The same needs immediate attention from DoP, AP to ensure compliance with Grid code.

9. Action Taken/Remedial Measures (सुधारात्मक उपाय):

- Power supply was extended to Napit and Niglok area of Arunachal Pradesh Power System by charging 132 kV Pasighat-Napit line 1 and 132 kV Pasighat-Napit line 2 at 13:12 Hrs and 13:14 Hrs of 08.01.2025

10. Non-compliance observed (विनियमन का गैर-अनुपालन):

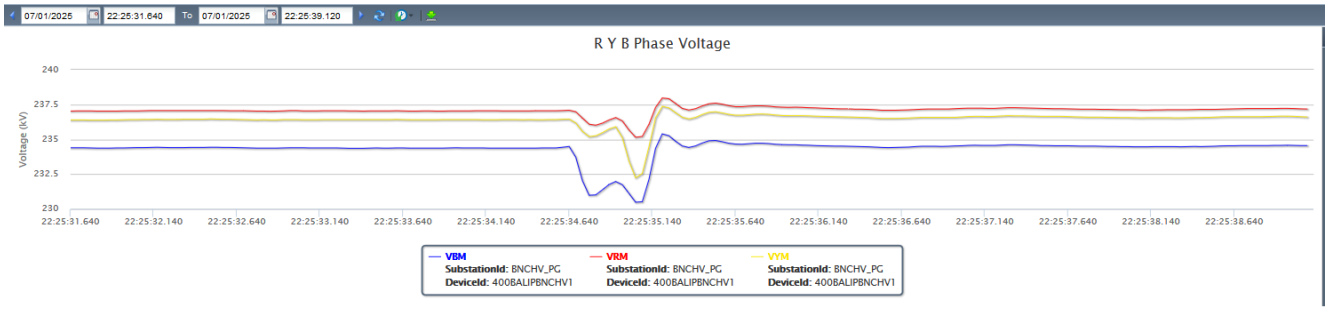
Sl. No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	***DoP, AP***
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	***DoP, AP***
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	***DoP, AP***
4.	**DR Time Synchronization Issues**	IEGC section 17.3	-

5.	**Any other non-compliance**		

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

- DoP AP is requested to carry out regular patrolling and maintenance related activities as per various CEA/CERC regulations to prevent such type of incidents.

Annexure 1: PMU Snapshot:



ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / North Eastern Regional Load Despatch Centre
कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Daporijo area of Arunachal Pradesh Power System of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))
(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date (दिनांक):13-01-2025

1. **Event Summary (घटना का सारांश):**

Daporijo area of Arunachal Pradesh Power System was connected with rest of NER Grid through 132 kV Daporijo-Basar line. 132 kV Ziro – Daporijo line tripped at 15:00 Hrs of 13-01-2025.

At 15:45 Hrs of 13-01-2025, 132 kV Daporijo-Basar line tripped. Due to tripping of this element, Daporijo area of Arunachal Pradesh Power System got isolated from NER Grid and collapsed due to no source available in this area

2. **Time and Date of the Event (घटना का स मय और दिनांक):** 15:45 Hrs of 13-01-2025
3. **Event Category (ग्रिड घटना का प्रकार):** GD-I
4. **Location/Control Area** (स्थान/नियंत्रण क्षेत्र): Daporijo area of Arunachal Pradesh Power System
5. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	49.98	2010	2090
Post Event (घटना के बाद)	49.99	2013	2096

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the event))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	NIL
Weather Condition (मौसम स्थिति)	Inclement weather

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 3 MW

3. **Duration of interruption (रुकावट की अवधि):** 1 Hour 45 Mins

4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

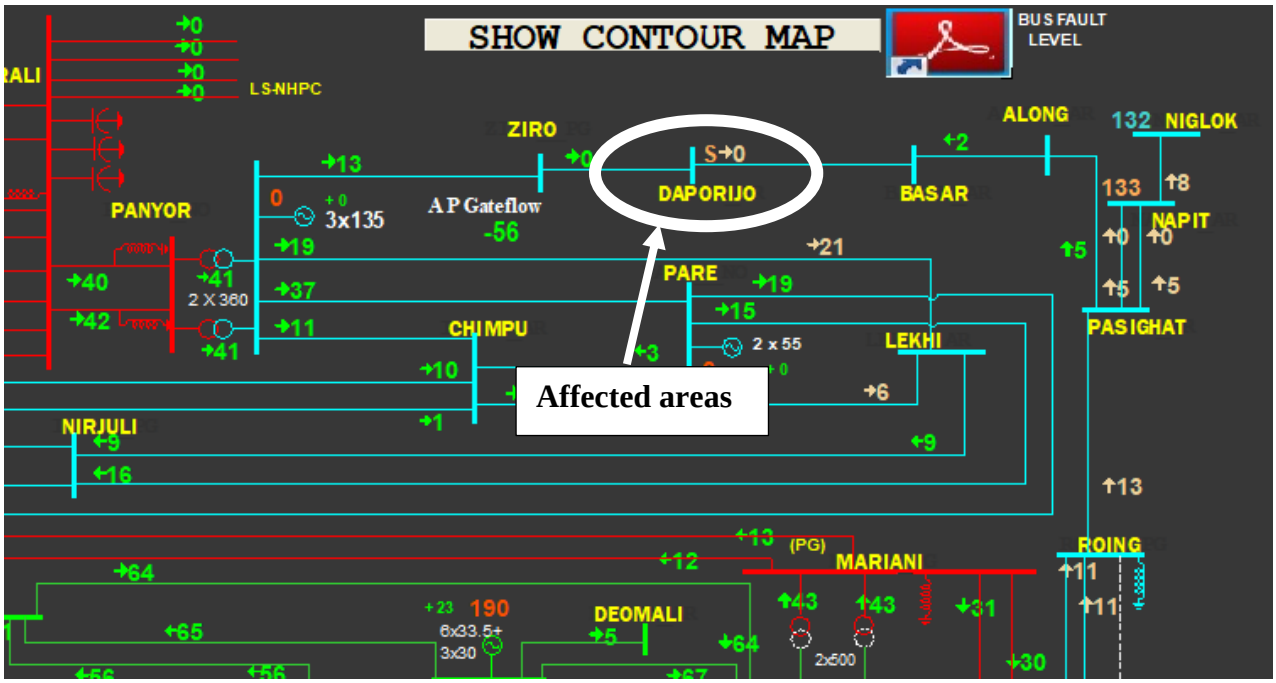


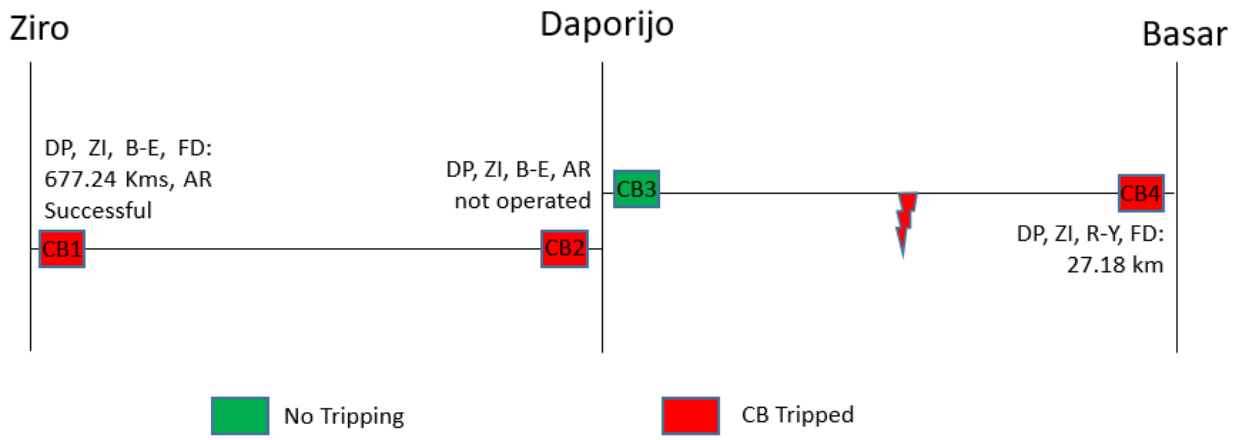
Figure 1: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** **NIL**

6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl no	Name	Trip time (hh:mm)	Restoration time (hh:mm)	Relay End 1	Relay End 2
1	132 kV Ziro – Daporijo line	15:00 Hrs	17:27 Hrs	DP, ZI, B-E, FD: 677.24 Kms, A/R Successful	DP, ZI, B-E, A/R not operated
2	132 kV Daporijo-Basar	15:45 Hrs	18:55 Hrs	No Tripping as radial connection from Basar.	DP, ZI, R-Y, FD: 27.18 km , A/R not attempted

7. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):



i) As per DR analysis, B-phase to E fault occurred in 132 kV Ziro-Daporijo Line at 15:00:13.363 Hrs and fault was cleared from Ziro on Z-1 within 57 msec, A/R successfully operated and Daporijo on Z-1 within 56 msec, A/R not attempted.

ii) At 15:43:18.118 Hrs, another R-Y fault occurred in 132 kV Basar-Daporijo line and fault was cleared from Basar on Z-1 operation within 80 msec. There was no tripping from daporijo as the line is radially feeding from Basar. Due to above Daporijo area isolated from rest of NER grid.

8. Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):

- Reason for non-operation of A/R at Daporijo for Ziro line needs to be checked by DoP, AP and corrective actions may be updated.
- Fault location of 677.24 Kms from Ziro seems erroneous. The same need to be reviewed by DoP AP by simulating the same fault with test kit.
- The fault on 132 kV Basar-Daporijo line is of a Ph-Ph nature, there is likely clearance issue that required immediate attention. DoP AP is requested to investigate and update the root cause of tripping at earliest.
- Huge time drift of 2 mins in DR observed from Basar. Healthiness of GPS may be checked and time to be adjusted as per grid code.
- SOE not recorded for tripping of all the elements. The same needs immediate attention from DoP AP team for ensuring IEGC compliance.

9. Action Taken/Remedial Measures (सुधारात्मक उपाय):

- Extensive patrolling was carried out in the vicinity of areas where the fault occurred.

- A/R for Multiphase fault at Basar end is being enabled. A/R scheme at Daporijo Substation for Ziro-Daporijo line is also being reviewed.

10. Non-compliance observed (विनियमन का गैर-अनुपालन):

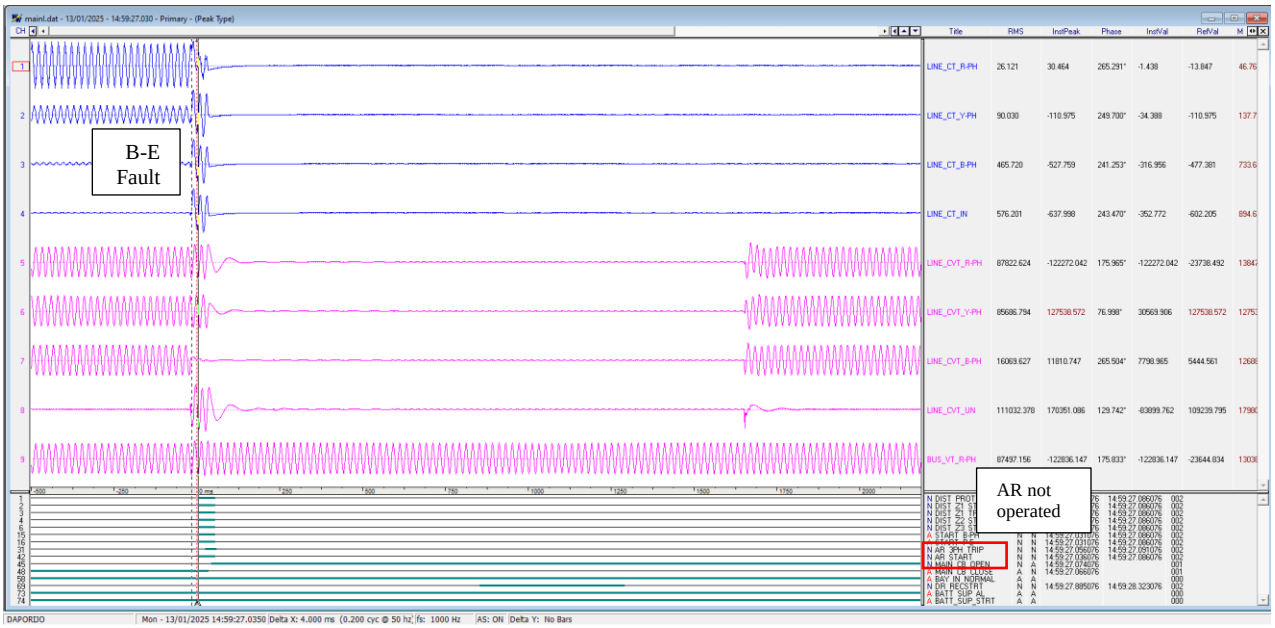
Sl. No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	***DoP AP***
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	***POWERGRID & DoP, AP***
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	***DoP AP***
4.	**DR Time Synchronization Issues**	IEGC section 17.3	***DoP AP***
5.	**Any other non-compliance**		

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

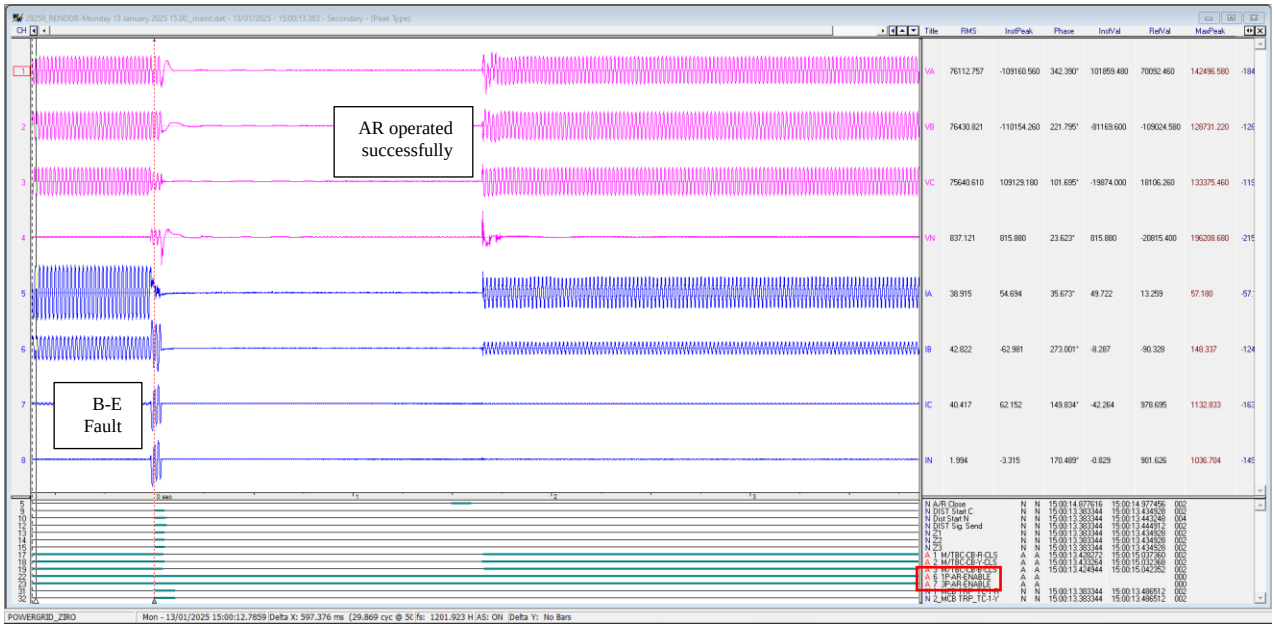
- Regular patrolling and maintenance related activities needs to be carried out as per various CEA/CERC regulations
- Relay setting , A/R scheme need to be review and tested periodically.

Annexure 1: Disturbance recorder snips showing faults and digital signals

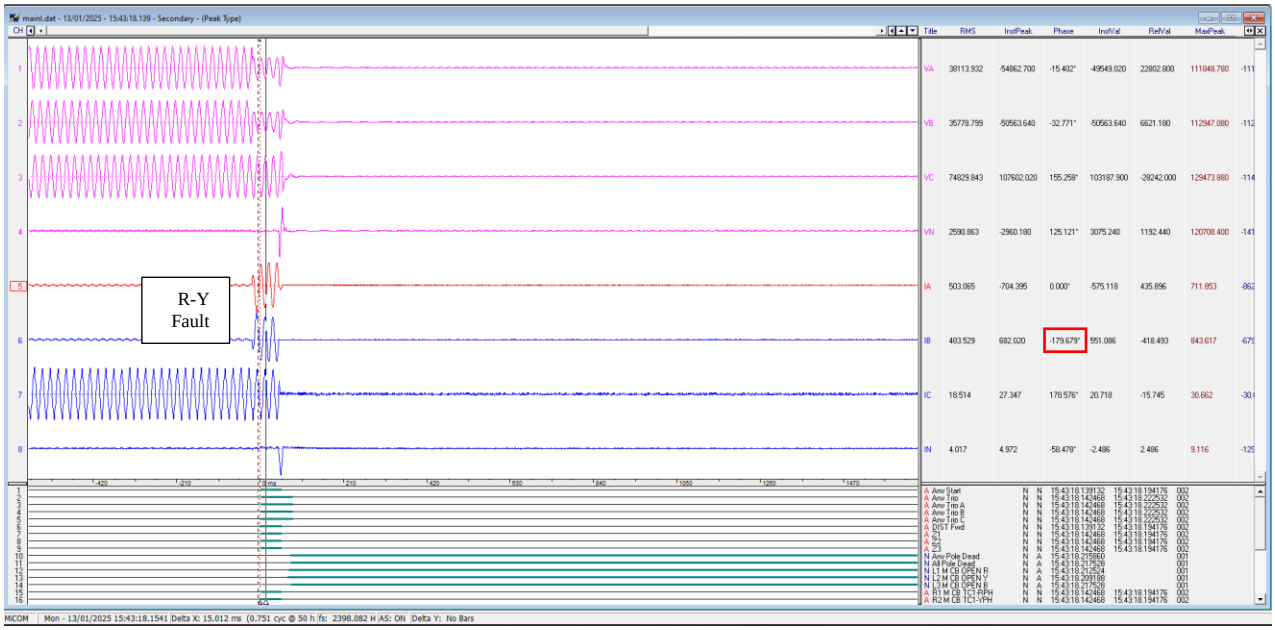
1.1. DR Snapshot of Daporijo for 132kV-Daporijo-Ziro Line



1.2. DR Snapshot of Ziro for 132kV-Daporijo-Ziro Line



1.3. DR Snapshot of Basar for 132kV-Daporijo-Basar Line



ग्रिड-इंडिया GRID-INDIA
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CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Leshka HEP of Meghalaya Power System of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))
(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date (दिनांक):20-01-2025

1. **Event Summary (घटना का सारांश):**

Leshka HEP of Meghalaya Power System was connected with rest of NER Grid via 132kV Mynkre-Myntdu Leshka D/C lines

At 09:16 Hrs of 20-01-2025, 132kV Mynkre-Myntdu Leshka D/C lines tripped. Due to tripping of these elements, Leshka HEP area of Meghalaya Power System was isolated due to loss of evacuation path. Also, during the same time Umiam stg1 Unit 1, Unit 2 and Unit 4 also tripped.

2. **Time and Date of the Event (घटना का स मय और दिनांक):** 09:16 Hrs of 20-01-2025

3. **Event Category (ग्रिड घटना का प्रकार):** GD-I

4. **Location/Control Area** (स्थान/नियंत्रण क्षेत्र): Leshka HEP of Meghalaya Power System

5. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	50.08	2291	2267
Post Event (घटना के बाद)	50.08	2160	2151

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the event))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	NIL
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Generation loss of 62 MW

3. **Duration of interruption (रुकावट की अवधि):** 20 min

4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

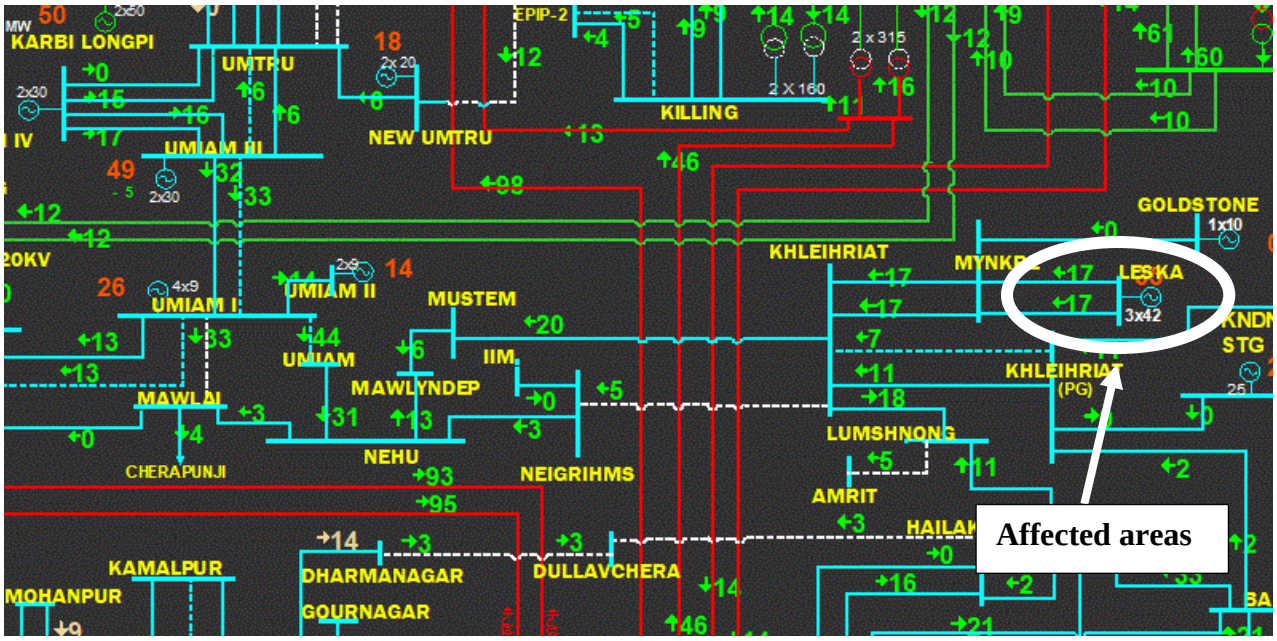


Figure 1: Network across the affected area

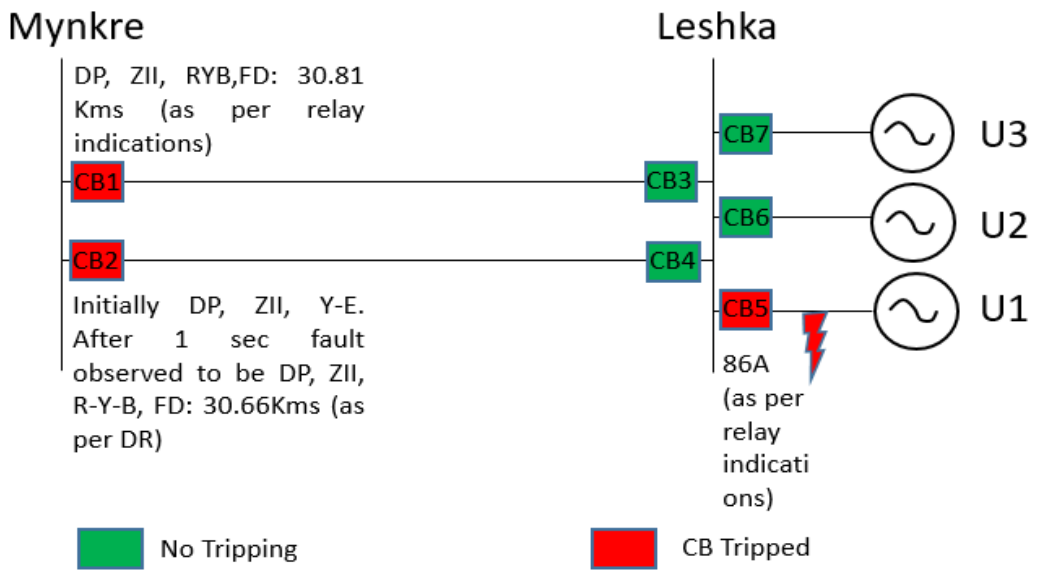
5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NIL**

6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

Sl no	Name	Trip time (hh:mm:ss)	Restoration time (hh:mm:ss)	Relay End 1	Relay End 2
1	132kV Mynkre-MLHEP(Leshka) line I	09:16 Hrs of 20-01-2025	09:36 Hrs of 20-01-2025	DP, ZII, R-Y-B,FD: 30.81KM	No Tripping
2	132kV Mynkre-MLHEP(Leshka) line II	09:16 Hrs of 20-01-2025	09:38 Hrs of 20-01-2025	DP,ZII, R-Y-B,FD:30.66Kms	No Tripping
3	Umiam stg1 Unit 1	09:16 Hrs of 20-01-2025	-	GPR-Generation Protection Relay, TRPN 86-1	
4	Umiam stg1 Unit 2	09:16 Hrs of 20-01-2025	09:37 Hrs of 20-01-2025	Generator O/C, Generator Over speed, 86, 51optd	

5	Umiam stg1 Unit 4	09:16 Hrs of 20-01-2025	09:35 Hrs of 20-01-2025	Generator O/C, Generator Over speed, 86 A,86 B,86 D, 51optd
6	Leshka Unit 1	09:16 Hrs of 20-01-2025	-	Master trip operated -86 A (blasted of CT at HV side of GT)

7. <u>Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):</u>



As per flash report, the fault originated due to bursting of HV side CT of GT of Leshka Unit 1. No DR and EL output submitted from Leshka Unit 1 end, due to which proper analysis could not be done.

It appears that Protection system of Unit 1 failed to clear the fault, which resulted in the fault being cleared from remote ends by tripping of 132kV Mynkre-MLHEP (Leshka) D/C lines from Mynkre end on Z-II, RYB fault with fault distance of 30.66 Kms within 422 msec.

Simultaneously, Umiam St I Unit 1, Unit 2 and Unit 4 tripped on 86 relay Operation, which inferred to be unwanted operation.

8. Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):

- Fault was due to bursting of HV side CT of GT of Leshka Unit 1 machine. The failure of circuit breaker (CB5) to clear the fault indicates a critical issue that requires a detailed review of the relay setting and switchgear equipment. The Reason for failure of protection system of Leshka Unit 1 along with the identification of the faulty CT phase must be investigated and updated by MePGCL along with detail report on the corrective action taken.
- Mynkre end DR channels for 132KV-Myntdu Leshka-Mynkre 1 Line are not standardised. The DR duration to be enhanced to 3 sec with Pre fault time of 500 msec and post fault of 2.5 sec. Also, voltage channel to be configured in analogue channel of DR in line with DR Parameter Standardisation report of FOLD Working Group-3. Action- MePTCL
- A huge time drift of 4 mins observed from Mynkre ends DR for 132KV-Myntdu Leshka-Mynkre D/C Lines. GPS need to be checked and time to be aligned to get correct sequence for analysis. Action-MePTCL
- SOE not recorded for tripping of all elements from Mynkre and Leshka HEP. The same needs attention by team MeTCL and MePGCL.
- Reason for tripping of 3 units from Umium stage-1 may be updated by MePGCL
- MePGCL may submit the Switchyard layout of Leshka for understanding of equipment location.

9. Action Taken/Remedial Measures (सुधारात्मक उपाय):

- Leshka Unit 1 is under emergency shutdown for rectification of the issue.

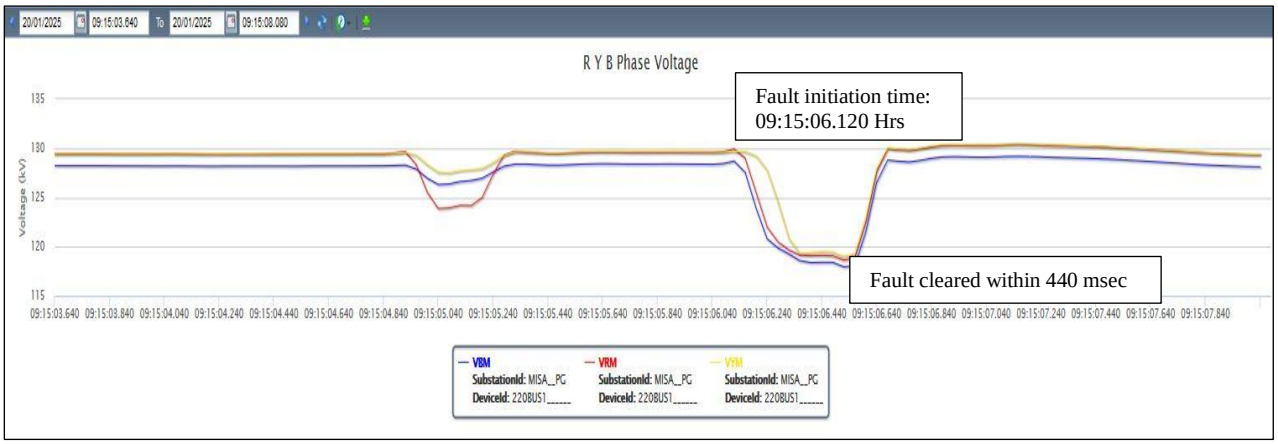
10. Non-compliance observed (विनियमन का गैर-अनुपालन):

Sl. No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**No violation**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	***MePGCL***
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	***MePTCL***
4.	**DR Time Synchronization Issues**	IEGC section 17.3	***MePTCL***
5.	**Any other non-compliance**		

11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

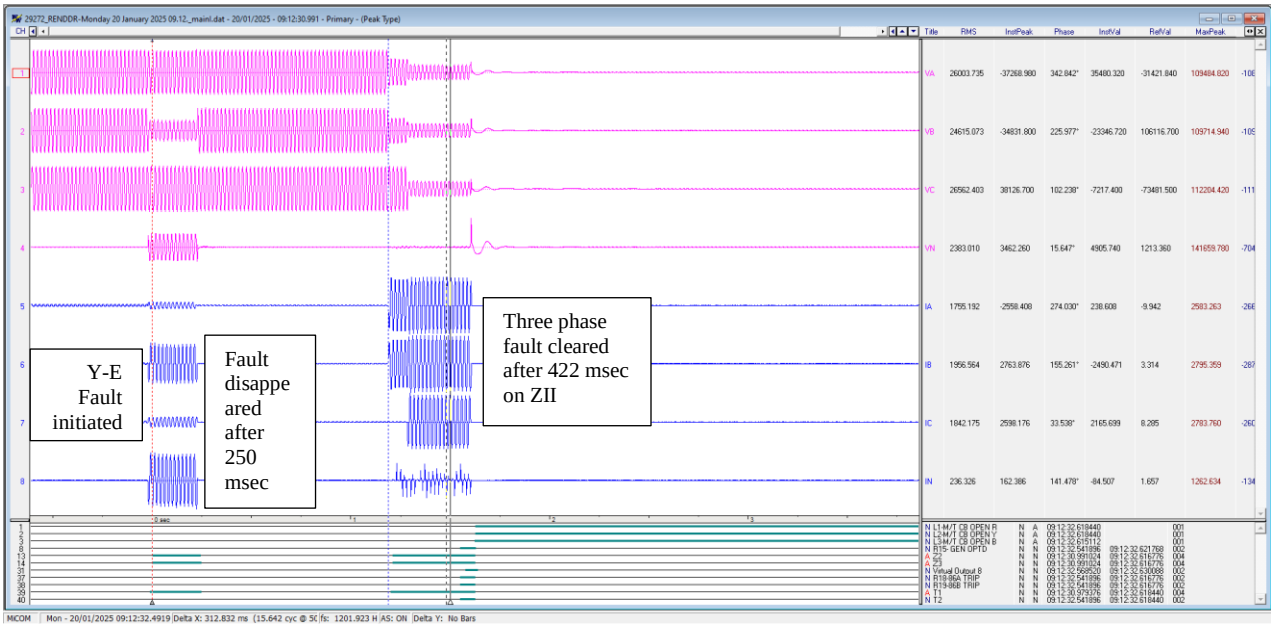
- Proper maintenance related activities as per CEA regulations needs to be carried out for all switchgear /protection equipment to identify potential vulnerabilities and prevent similar events.
- Healthiness of protection system, SOE status, GPS etc needs to be ensured at all times.

Annexure 1: PMU Snapshot:

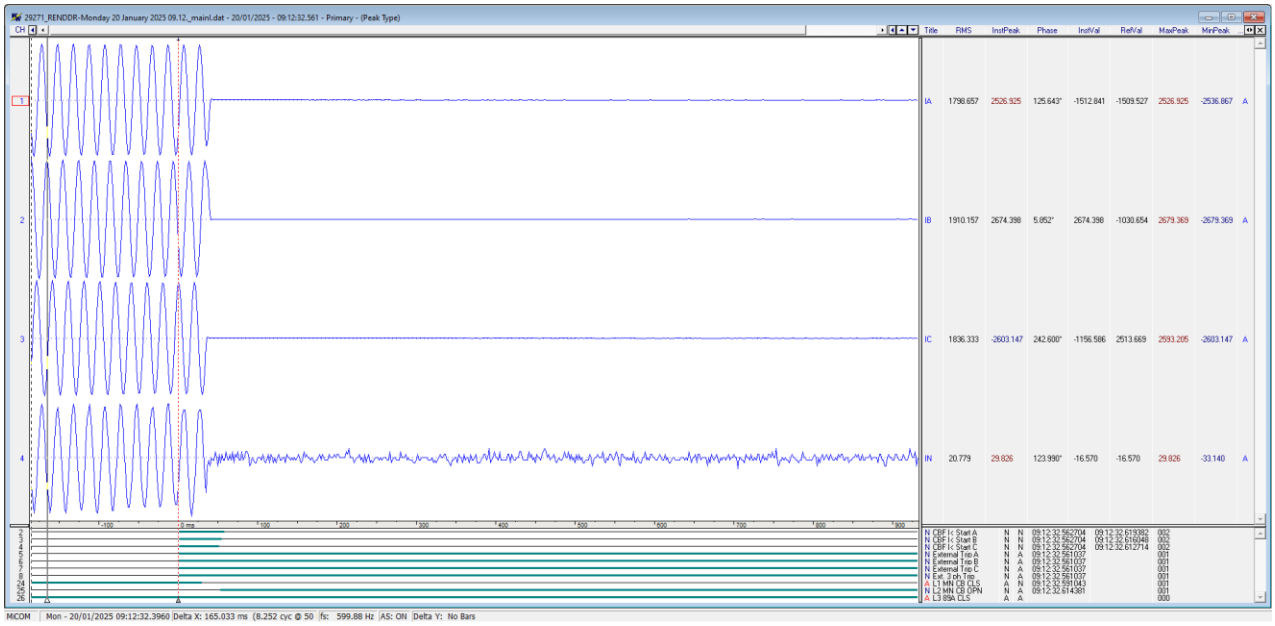


Annexure 2: Disturbance recorder snips showing faults and digital signals

2.1. DR Snapshot of Mynkre for 132KV-Myntdu Leshka-Mynkre 2 Line



2.2. DR Snapshot of Mynkre for 132KV-Myntdu Leshka-Mynkre 1 Line



ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
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कार्यालय : लोवर, लापालांग, शिलांग -793006
Office : Lower Nongrah, Lapalang, Shillong- 793006
CIN : U40105DL2009GOI188682, Website : www.nerldc.in, E-mail : nerldc@grid-india.in, Tel.: 0364-2537470/427, Fax: 03642537486

Detailed Report of Grid Disturbance in Along area of Arunachal Pradesh of North Eastern Region

(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))
(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date (दिनांक**):23-01-2025**

1. **Event Summary (घटना का सारांश):**

Along area of Arunachal Pradesh Power System was connected with rest of NER Grid through 132 kV Along-Basar & 132 kV Along-Pasighat lines.

At 18:36 Hrs of 23-01-2025, 132 kV Along-Pasighat and 132kV Along-Basar line tripped. Due to tripping of these elements, Along area of Arunachal Pradesh Power System got isolated from NER Grid and collapsed due to no source available in this area.

Power supply was extended to Along area of Arunachal Pradesh Power System by charging 132 kV Along-Pasighat line at 19:27 Hrs of 23-01-2025.

2. **Time and Date of the Event (**घटना का स मय और दिनांक**):** 18:36 Hrs of 23-01-2025

3. **Event Category (**ग्रिड **घटना का प्रकार):** GD-I

4. **Location/Control Area** (स्थान/नियंत्रण क्षेत्र): Along area of Arunachal Pradesh Power System

5. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency in Hz	Regional Generation (MW)	Regional Demand (MW)
Pre-Event (घटना पूर्व)	50.04	2914	2786
Post Event (घटना के बाद)	50.04	2922	2782

Pre and post data of 1 minute before and after the event

Important Transmission Line/Unit if under outage (before the event))महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है(	NIL
Weather Condition (मौसम स्थिति)	Normal

2. **Load and Generation loss (लोड और जेनरेशन हानि):** Load loss of 5 MW
3. **Duration of interruption (रुकावट की अवधि):** 51 min
4. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

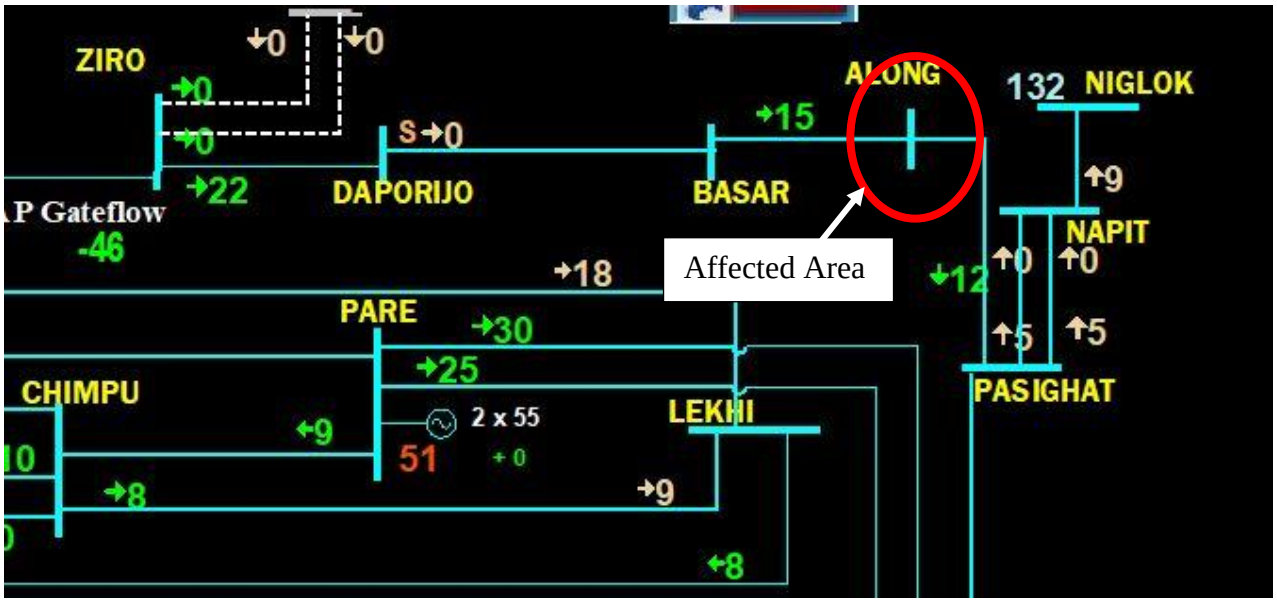
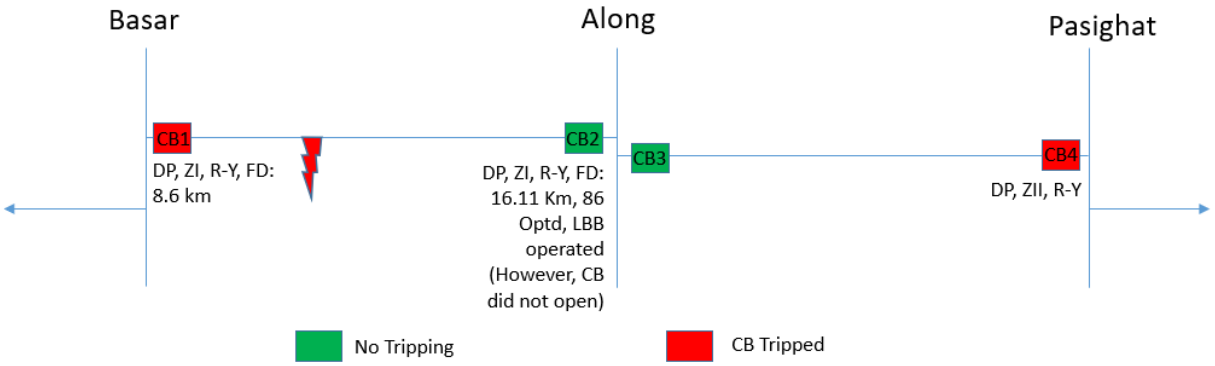


Figure 1: Network across the affected area

5. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** **NIL**
6. **Major Elements Tripped (प्रमुख ट्रिपिंग):**

क्रम. संख्या Sl. No.	नाम Name	ट्रिपिंग का समय Trip time (hh:mm:ss)	पुनर्स्थापना का समय Restoration time	उप केंद्र 1 रिले संकेत Relay indications End 1	उप केंद्र 2 रिले संकेत Relay indications End 2
1	132 kV Along-Basar Line	18:36	12:55 hrs of 24-01-2025	DP, ZI, R-Y, FD: 16.11 Km, 86 Optd, LBB operated (However, CB did not open)	DP, ZI, R-Y, FD: 8.6 km
3	132 kV Along-Pasighat Line	18:36	19:27	No tripping (Loss of voltage)	DP, ZII, R-Y

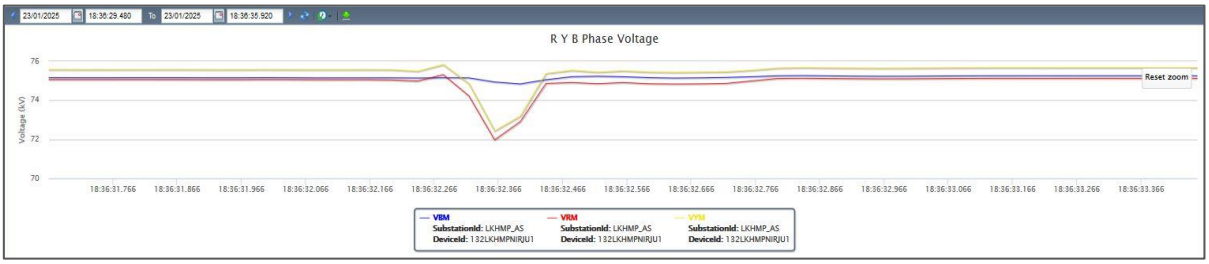
7. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):



As per DR analysis, R-Y fault (Ir-537 A, Iy-535 A) in 132 kV Along-Basar line initiated at 18:36:46.864 Hrs which was cleared within 80 msec from Basar end on operation of DP, ZI. A/R not attempted. ZI started from Along end and trip command issued. However, CB at Along did not open. Due to non-isolation of fault from Along, fault was feeding continuously from Pasighat of 132 kV Pasighat-Along line and cleared the fault on DP, ZII, R-Y, within 420 msec, resulting blackout of Along area. No tripping from Along end.

At 18:36:47.170 Hrs, after 300 msec of initiation of fault, LBB initiation command was also triggered at Along, however the Pasighat line breaker did not open.

PMU snapshot



8. Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):

- Non-opening of CB at Along for 132 kV Along-Basar line despite issuance of ZI trip command. DoP AP to resolve the CB switchgear issue on URGET basis..
- At 18:36:47.170 Hrs, after 300 msec of initation of fault, LBB initiation command was triggered at Along end. However, Pasighat line breaker did not open. LBB time delay setting and its wiring circuit to all feeders at Along to be reviewed and remedial measures to be taken immediately

- SOE not recorded for tripping of any of the elements. The same needs to be checked by DoP AP/SLDC AP/POWERGRID.

9. Action Taken/Remedial Measures (सुधारात्मक उपाय):

- DoP AP to inform the root cause of the fault.
- The Pneumatic type Circuit Breaker of Basar feeder at Along Substation which is reported to be in poor working condition needs to be replaced immediately.
- Multiphase A/R along with 1-Ph needs to be implemented for continuity of power supply in case of transient multiphase fault
- Review and correction of the LBB wiring for the Pasighat breaker

It is to be mentioned that similar kind of disturbance observed on 08th Dec'24 and it was already highlighted in the last 75 PCC meeting. During the meeting, it was deliberated that the issue was with the pneumatic drive CB at Along for the Basar Line would be resolved through replacement and the LBB wiring for the Pasighat breaker would be checked and corrected.

10. Non-compliance observed (विनियमन का गैर-अनुपालन):

Sl. No.	Issues	Regulation Non-Compliance	Utilities
1.	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	**DoP AP**
2.	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**No violation**
3.	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	**No violation**
4.	**DR Time Synchronization Issues**	IEGC section 17.3	**Time drift of 1 min at Pasighat end for 132 kV Along-Pasighat line**
5.	**Any other non-compliance**		-

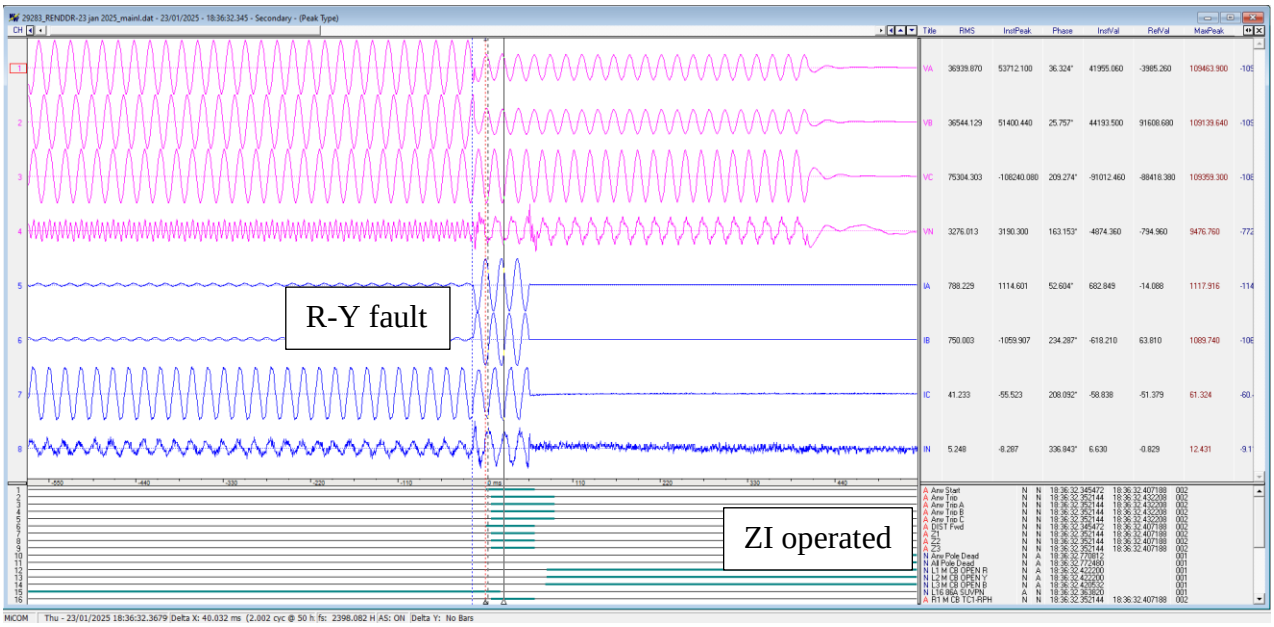
11. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

- Proper maintenance related activities as per CEA regulations needs to be carried out.
- Healthiness of protection system needs to be ensured at all times.

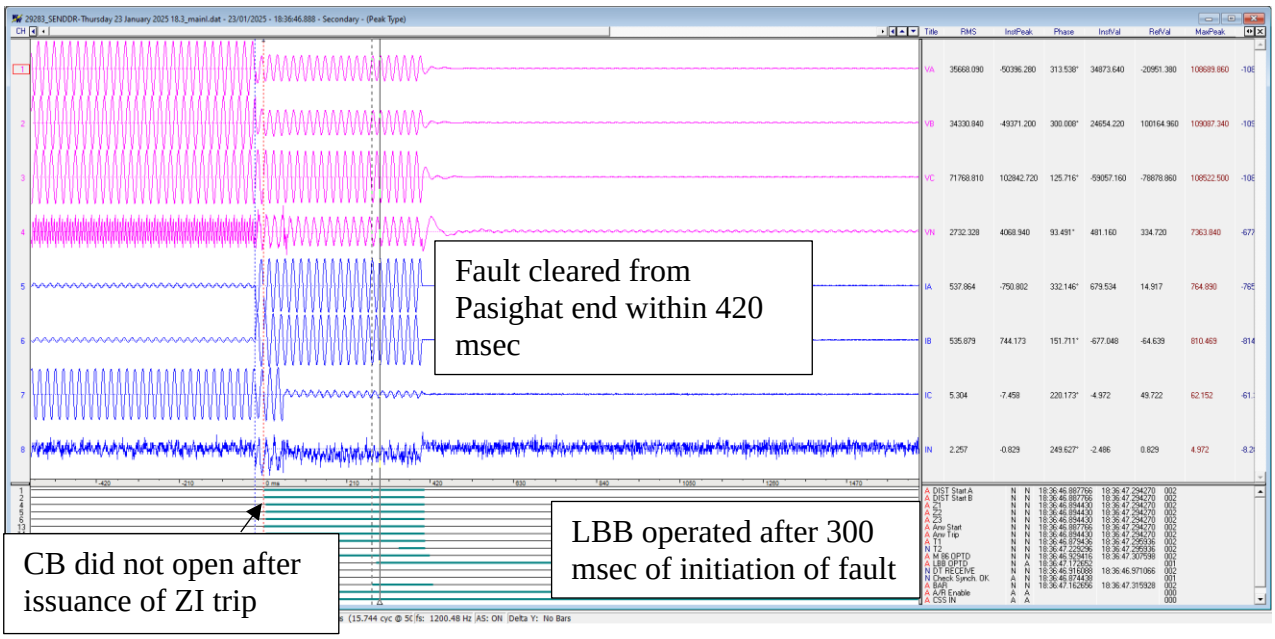
Annexure 1: Sequence of Events as per SCADA- **SOE not recorded**

Annexure 2: Disturbance recorder snips showing faults and digital signals

2.1. DR Snapshot of Basar for 132 kV Along-Basar Line



2.2. DR Snapshot of Along for 132 kV Along-Basar Line



2.3. DR Snapshot of Pasighat for 132 kV Along-Pasighat Line